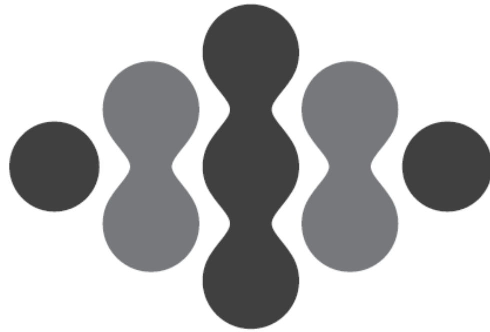

2018 Annual Report

Dear Fellow Shareholders,

2018 continued a multi-year run of very strong growth for the semiconductor industry. Although the market started to soften in the fourth quarter, the industry still grew 13% over 2017. The high profitability generated by these levels of growth have traditionally been used by companies to fund next generation manufacturing nodes and more competitive products. But 2018 also had a further reduction in the number of companies willing to invest in the bleeding edge of semiconductor manufacturing technology. Today only three companies continue to do so: Intel, Samsung, and TSMC. For the rest of the industry, the focus has shifted to enhancing existing process nodes to achieve competitive advantage.

Atomera's MST technology is uniquely targeted at this challenge, providing the means to improve production processes from legacy analog nodes to mainstream logic, planar extension technologies like DRAM as well as the newest nodes under development. MST is available today and is deposited using industry standard tools and materials that are already deployed in semiconductor fabs.

To support our growing license business, Atomera has built a deep and comprehensive IP portfolio around MST and MST-enabled applications. Indeed, in 2018 Atomera's granted and pending patents, grew by 24% to 198 worldwide. Further, our portfolio of know-how has expanded to support many applications, process conditions, and integration techniques, which has enabled us to increase our work with customers by 50% to 21 engagements over the course of 2018. More importantly, customers in the integration phase with Atomera have increased by over 100% year over year.

In 2018, we were happy to announce the execution of our first two commercial license agreements. Asahi Kasei Microdevices (AKM) became our first licensee in September after working with MST for several years. STMicroelectronics, a customer for less than two years, became a licensee in October. Recognizing our first commercial license revenue has always been a major objective of the company, so we were pleased to achieve it with these two customers.

Technology and customer progress during the past year have been impressive. At this point, Atomera is better positioned, more diversified, and lower risk than at any point in our history. We continue to be confident that our steady progress with a variety of customers will result in financial success that will drive value for all our stakeholders.

Thank you for your trust and support,

Scott A. Bibaud
President and Chief Executive Officer
Atomera Incorporated
April 2019

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408-442-5248 | fx. 408-560-9556 | www.atomera.com

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2018

or

☐ **TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission file number: 001-37850

ATOMERA INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	**30-0509586**
(State or Other jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification Number)

750 University Avenue, Suite 280
Los Gatos, California 95032
(Address, including zip code, of registrant's principal executive offices)

(408) 442-5248
(Registrant's telephone number, including area code**)**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class:	**Name of each exchange on which registered**
Common stock: Par value $.001	Nasdaq Capital Market

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the past 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers in response to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company (as defined in Rule 12b-2 of the Exchange Act):

Large accelerated filer ☐	Accelerated filer ☐
Non-accelerated filer ☒	Smaller reporting company ☒
	Emerging Growth Company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act) Yes ☐ No ☒

State the aggregate market value of voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold, or the average bid and asked price of such common equity, as of the last business day of the registrant's most recently completed second fiscal quarter: $68,244,628. Shares of the registrant's common stock held by each executive officer, director and holder of 10% or more of the outstanding common stock (as determined based on public filings) have been excluded in that such persons may be deemed to be affiliates. This calculation does not reflect a determination that certain persons are affiliates of the registrant for any other purpose.

As of March 7, 2019, there were 15,331,503 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

The registrant intends to file a definitive proxy statement pursuant to Regulation 14A within 120 days after the end of the fiscal year ended December 31, 2018. Portions of such proxy statement are incorporated by reference into Part III of this Form 10-K.

ATOMERA INCORPORATED

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NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, that are intended to be covered by the “safe harbor” created by those sections. The words “believe,” “may,” “will,” “potentially,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “would,” “should,” “ongoing,” “project,” “plan,” “expect” and similar expressions that convey uncertainty of future events or outcomes are intended to identify forward-looking statements. These forward-looking statements include, but are not limited to, statements concerning the following:

- our future financial and operating results;
- our intentions, expectations and beliefs regarding anticipated growth, market penetration and trends in our business;
- the timing and success of our plan of commercialization;
- our ability to operate our royalty-based business model;
- the effects of market conditions on our stock price and operating results;
- our ability to maintain our competitive technological advantages against competitors in our industry;
- our ability to have our technology solutions gain market acceptance;
- our ability to maintain, protect and enhance our intellectual property;
- the effects of increased competition in our market and our ability to compete effectively;
- costs associated with initiating and defending intellectual property infringement and other claims;
- our expectations concerning our relationships with potential customers, partners and other third parties;
- the attraction and retention of qualified employees and key personnel;
- future acquisitions of or investments in complementary companies or technologies; and
- our ability to comply with evolving legal standards and regulations, particularly concerning requirements for being a public company.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in “Risk Factors” and elsewhere in this Annual Report and our subsequently filed Quarterly Reports on Form 10-Q. Moreover, we operate in a very competitive and rapidly changing environment, and new risks emerge from time to time. It is not possible for us to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this Annual Report may not occur and actual results could differ materially and adversely from those anticipated or implied in our forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. Moreover, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this Annual Report to conform these statements to actual results or to changes in our expectations, except as required by law.

You should read this Annual Report and the documents that we reference in this Annual Report and have filed with the Securities and Exchange Commission as exhibits with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

PART I

Item 1. Business

General

We are engaged in the business of developing, commercializing and licensing proprietary materials, processes and technologies for the $450+ billion semiconductor industry. Our lead technology, named Mears Silicon Technology™, or MST®, is a thin film of reengineered silicon, typically 100 to 300 angstroms (or approximately 20 to 60 silicon atomic unit cells) thick. MST can be applied as a transistor channel enhancement to CMOS-type transistors, the most widely used transistor type in the semiconductor industry. MST is our proprietary and patent-protected performance enhancement technology that we believe addresses a number of key engineering challenges facing the semiconductor industry. We believe that by incorporating MST, transistors can be smaller, with increased speed, reliability and energy efficiency. In addition, since MST is an additive and low-cost technology, we believe it can be deployed on an industrial scale, with machines commonly used in semiconductor manufacturing. We believe that MST can be widely incorporated into the most common types of semiconductor products, including analog, logic, optical and memory integrated circuits.

We do not intend to design or manufacture integrated circuits directly. Instead, we intend to develop and license technologies and processes that will offer the designers and manufacturers of integrated circuits a low-cost solution to the industry's need for greater performance and lower power consumption. Our customers and partners include or are expected to include:

- foundries, which manufacture integrated circuits on behalf of fabless manufacturers;
- integrated device manufacturers, or IDMs, which are the fully integrated designers and manufacturers of integrated circuits;
- fabless semiconductor manufacturers, which are designers of integrated circuits that outsource the manufacture of their chips to foundries;
- original equipment manufacturers, or OEMs, which manufacture the epitaxial, or EPI, deposition machines used to deposit semiconductor layers, such as the MST® film onto the base silicon wafer; and
- electronic design automation companies, which make software tools used throughout the industry to simulate the effects of using different materials, design structures and process technologies on the performance of semiconductor products.

We intend to generate revenue through licensing arrangements whereby foundries and IDMs pay us a license fee for their right to use MST technology in the manufacture of silicon wafers as well as a royalty for each silicon wafer or device that incorporates our MST technology. We also intend to enter into licensing arrangements with fabless semiconductor manufacturers pursuant to which we will charge them a royalty for each device they sell that incorporates our MST technology.

We were organized as a Delaware limited liability company under the name Nanovis LLC on November 26, 2001. On March 13, 2007, we converted to a Delaware corporation under the name Mears Technologies, Inc. On January 12, 2016, we changed our name to Atomera Incorporated. Shares of our common stock are listed on the NASDAQ Capital Market under the symbol "ATOM".

Industry Overview

Semiconductors, Generally

Recent years have seen a remarkable proliferation of consumer and commercial products, especially in wireless, automotive and mobile electronic devices. The growth of the Internet and cloud computing has provided people with new ways to create, store and share information. At the same time, the increasing use of electronics in cars, buildings, appliances and other consumer products is creating a broad landscape of "smart" devices and the evolution of wearable technologies and The Internet of Things.

These developments depend, in large part, on integrated circuits, or microchips, which are sets of electronic circuits on a single chip of semiconductor material, normally silicon. It is common for a single semiconductor chip to combine many components (processor, communications, memory, custom logic, input/output) resulting in highly complex chip designs. Transistors are the building blocks of integrated circuits and the most complex semiconductor chips today contain more than a billion transistors, each of which may have features that are much less than 1/1,000th the diameter of a human hair.

The most widely used transistors in semiconductor chips today are based on the CMOS technology. Among its many attributes, CMOS allows for a higher density of transistors on a chip and lower power usage than non-CMOS technologies.

The Pursuit of Increased Semiconductor Performance

For years, the semiconductor industry was able to almost double the number of transistors it could pack into a single microchip about every two years, a rate of improvement commonly known as "Moore's Law." The semiconductor industry uses the term "node" to describe the minimum line width or geometry on a semiconductor chip, expressed in nanometers, or nm, for today's technologies. Historically, the smaller the node, the smaller the transistors and the more closely they are packed together, producing chips that are denser and thus less costly on a per-transistor basis. Frequently, smaller nodes also correspond to an improvement in chip performance, making them the mile markers of Moore's Law, with each node marking a new generation of chip-manufacturing technology.

Until recently, the industry succeeded at maintaining the rate of improvement predicted by Moore's Law by scaling the key transistor parameters, such as shrinking feature sizes and operating voltages, thereby allowing more transistors to be packed onto a single microchip. This trend was facilitated in large part by the development of the CMOS technologies. However, a discontinuity in the rate of improvement delivered by scaling appeared a few years ago when transistor technology reached feature sizes below 100 nanometers. The industry responded with advanced materials to supplement the ongoing geometry shrinks. Some of those materials advances included strained silicon, Silicon on Insulator and High-K/Metal Gate.

In addition, due to the popularity of mobile devices and other electronic products, there is increasing demand for integrated circuits and systems with greater functionality and performance, reduced size, and much less power consumption as key requirements.

The designers and manufacturers of integrated circuits and systems — our potential customers — are facing intense pressure to deliver innovative products at ever shorter times-to-market, as well as at lower prices. In other words, innovation in chip and system design today often hinges on "better, sooner and cheaper." We believe that the semiconductor industry has accepted that moving forward in the nano-era will require adoption of new innovations that extend the scaling formula, including those based on the use of new engineered materials, a market opportunity our MST® technology seeks to address. Because shrinking geometries at the smaller nodes incurs higher capital and manufacturing costs, only limited products can take on the increased cost burden and still be economically viable. We believe these cost constraints will cause semiconductor designers and manufacturers to turn to engineered materials, like MST®, to solve this problem.

Vertical Disaggregation of the Industry

In trying to keep research and development costs manageable, while attempting to satisfy the demand for increasingly complex semiconductors, certain designers and manufacturers of integrated circuits have transitioned to an open innovation model in which competing companies and third-party providers actively collaborate to address performance issues through various alliances, joint ventures, and licensing of externally developed technology.

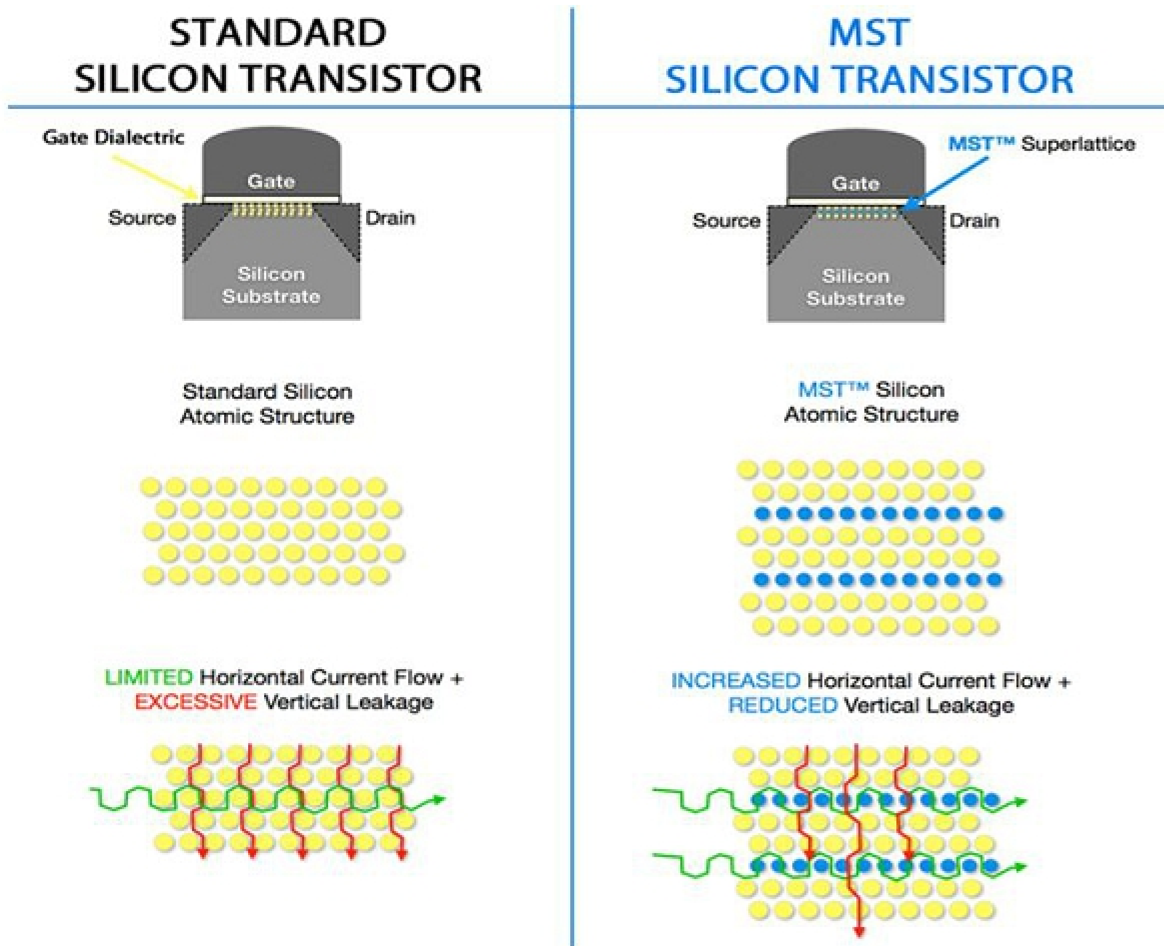
Historically, most semiconductor companies were vertically integrated. They designed, fabricated, packaged and tested their semiconductors using internally developed software design tools and manufacturing processes and equipment. As the cost and skills required for designing and manufacturing complex semiconductors have increased, the semiconductor industry has become disaggregated, with companies concentrating on one or more individual stages of the semiconductor development and production process. This disaggregation has fueled the growth of fabless semiconductor companies, design tool vendors, semiconductor equipment manufacturers, third-party semiconductor manufacturers (or foundries), semiconductor assembly, package and test companies, and intellectual property companies that develop and license technology to others.

While specialization has enabled greater development and manufacturing efficiency, it has also created an opportunity for IP-based companies, such as Atomera, that develop and license technology to meet fundamental, industry-wide challenges. These intellectual property companies have been able to gain broad adoption of their technology throughout the industry by working with companies within the semiconductor supply chain to evaluate and integrate their technology. Manufacturers and designers of semiconductors increasingly find it more cost-effective to license technologies from IP-based companies than internally developing processes that are not their core competence. We believe this collaboration and integration of externally developed IP benefits semiconductor companies by enabling them to bring new technology to market faster and more cost-effectively.

Our Initial Application of Mears Silicon Technology

The initial application of our MST will be for CMOS integrated circuits, the most widely used type of integrated circuits in the semiconductor industry. As applied to CMOS-type transistors, MST functions as a transistor channel enhancement. We believe

MST has the potential to overcome the key challenges found in the implementation of next generation nano-scale semiconductor devices incorporating CMOS-type transistors, namely enhancing drive current, reducing gate leakage and reducing variability. In addition, we believe that MST has the potential to deliver these benefits through a single technology that requires relatively minor modifications to the industry standard CMOS manufacturing flow. Consequently, we believe that by incorporating MST, designers can make transistors with increased speed, reliability and energy efficiency, without significantly altering the current fabrication process or cost of production.



As illustrated by the accompanying diagram, MST is a "silicon-on-silicon" solution that provides multiple benefits through a relatively simple modification to the standard CMOS manufacturing flow. MST improvements are delivered through our proprietary and patent-protected silicon band engineering approach that is based on the quantum mechanics of modern deep sub-micron devices. The MST film creates channels that allow electrons to flow more freely in the plane of the transistor, thereby enhancing drive current, while reducing electron flow or "leakage" in the transverse direction. Our MST film can also create more controlled doping profiles, which allow dopants to be held in the desired locations, thereby reducing variability and improving production yield.

We believe the enhancements enabled by MST as demonstrated in simulations and on test chips, are approximately equivalent to the enhancements enabled by one-half to a full node of improvement and, therefore, extend the productive life of capital equipment and wafer fabrication facilities. The extent of MST-enabled enhancement depends on the device technology and application. We believe that MST compares favorably to other alternatives for enhancing performance of CMOS-type transistors as follows:

- *Strained Silicon and Silicon-on-Insulator, or SOI*: Unlike strained silicon or SOI, we believe that MST delivers multiple benefits in a single film in a cost-effective manner, including enhanced transistor drive current, reduced leakage, and reduced variability. Also, strained silicon tends to lose much of its effectiveness below 45nm, constraining its scalability, while the MST thin-film approach is expected to be scalable below 22nm. Also, based on our own research and development and third-party evaluations, we believe that MST can deliver improved cost-benefit performance, in most cases in an additive manner, compared to already successful strain technologies, such as dual stress liners and SiGe.

- *High-K/Metal Gate, or HKMG*: Unlike HKMG, MST is silicon-based. As a "silicon-on-silicon" solution, MST does not require new materials or equipment, which in our opinion makes it much easier and less costly to adopt than HKMG for devices not requiring ultra-thin gate dielectrics. For devices with HKMG, lab tests and simulations indicate that MST benefits transistor performance and variability in a similar manner to that observed in non-HKMG devices.

Because of its physical characteristics in the channel region of the transistor, we believe MST has the further benefit of being complementary and additive to the performance enhancing technologies noted above, making MST broadly applicable across multiple devices and process flows to meet a wide variety of customer design objectives. Given the costs of moving to more advanced technologies, we believe one of the most compelling aspects of MST is its cost/benefit profile. We believe that MST will provide a lower cost of production due to our technology's potential to reduce die size while leveraging existing manufacturing tools, thereby providing chip makers with increased performance at all process nodes with significantly fewer disruptions to manufacturing processes and less incremental cost than other advanced technologies.

We believe MST can improve transistor performance in a variety of device types including microprocessors; logic products; DRAM, SRAM, and other memory integrated circuits; as well as analog, radio frequency, and mixed-signal devices. We have therefore developed different MST product options that can be applied to the critical industry segments and technology nodes. As of the date of this Annual Report, we have done technology simulation work with universities and leading industry players at nodes from 180nm to 5nm. We have also simulated devices with leading industry research facilities and built and electrically verified test chips using MST in customer manufacturing facilities which have produced results that demonstrate many of the benefits described above.

Development Partnerships

TSI Semiconductors. In January 2017, we announced an agreement with TSI Semiconductors America LLC to provide us with engineering services in their semiconductor manufacturing facility in California. By running tests in TSI Semiconductor's facility, which we utilize to run tests on a contract basis, we are able to build and test devices that incorporate MST much more quickly than when we test in our potential customers' facilities. We believe this arrangement enables faster product development, test, and integration, and should accelerate our time to market.

Synopsys. In March 2017 we announced our collaboration with Synopsys, Inc., provider of the most broadly used technology computer-aided design, or TCAD, simulation software in the semiconductor industry. Synopsys' software now supports modeling of MST, which enables semiconductor manufacturers and designers to model the interaction of MST with other process steps. We have begun to use our modeling capabilities to demonstrate to potential customers the likely benefits of MST on the performance of a completed semiconductor device. We believe these capabilities are helping us focus integration efforts for potential customers more quickly on those areas most likely to deliver benefits, thus shortening test cycles and, we believe, accelerating the time to a license decision.

MST Commercialization

We do not intend to design or manufacture integrated circuits directly. Instead, we intend to develop and license technologies and processes that will offer the designers and manufacturers of integrated circuits a low-cost solution to the industry need for increased performance. Our customers and partners are expected to include foundries, integrated device manufacturers, or IDMs, fabless semiconductor manufacturers, OEMs, that manufacture epitaxial deposition, or EPI, machines, and electronic design automation software companies, such as Synopsys.

We intend to generate revenue through licensing arrangements whereby foundries and IDMs pay us a license fee for their use of MST technology in the manufacture of silicon wafers as well as a royalty for each silicon wafer or device that incorporates our MST technology. We also intend to enter into licensing arrangements with fabless semiconductor manufacturers pursuant to which we will charge them a royalty for each device they sell that incorporates our MST technology. The IDMs and fabless semiconductor manufacturers are the primary beneficiaries of our commercialization activities, as they are producers and distributors of the integrated circuits onto which we will endeavor to incorporate our MST technology. The foundries and OEMs also play an important role in our commercialization strategy in that these parties have traditionally sought to provide new technologies to their customers, which in the case of the foundries are the fabless semiconductor manufacturers and in the case of the OEMs are the IDMs and foundries that purchase EPI machines.

In the semiconductor industry, new technologies are vetted thoroughly and carefully by early adopters but, once proven, tend to be adopted broadly by the industry and, wherever possible, exploited for several generations until their full potential is reached. Before introducing a new technology into its fabrication process, the customer will conduct a formal and rigorous multi-phase testing process, which can range from 18 to 36 months.

Our engagements with IDMs and fabless semiconductor manufacturers who are potential customers typically consists of the following phases:

1. *Engineering Planning:* In this phase we engage in a technical exchange of information under a non-disclosure agreement to understand the customer's manufacturing process and to determine how best to integrate the deposition of MST film onto the customer's semiconductor wafers.

2. *Set-up for MST Integration:* We agree upon the technical evaluation details, including the expected rounds of evaluation testing, the parameters to be tested and allocation of costs. Customers provide us with wafers for our internal processing and physical characterization. Some customers work together with us to develop a TCAD model showing possible results of MST integration with their particular manufacturing process.

3. *Integration.* Typically, this phase includes several rounds of tests that involve building test devices on a semiconductor wafer using our MST technology within the customer's manufacturing process flow. We have not had any customers move beyond phase three as of the date of this Annual Report. We believe that this phase will continue to be the longest in our customer engagement process due to the fact that integrating MST into a customer's manufacturing flow frequently requires us to conduct subsequent tests based on the result of earlier test runs. This phase also requires investment of time and resources by customers. In order to progress beyond this, we must demonstrate benefits at a commercially-significant level. It is difficult for both customers and for Atomera to estimate the amount of time a customer will be in the integration phase.

4. *Process Installation*. Prior to enabling a customer to install and use MST technology on epitaxial deposition machines in their own fab, we intend to require execution of a license for use of our patents and proprietary know-how. Requiring a license at this stage is a customary and accepted practice in the semiconductor industry.

5. *Technology qualification*. After installation of MST in the fab, the customer will conduct additional testing to ensure manufacturing reliability under accelerated test conditions that simulate volume production. Upon successfully completing the qualification phase, products can be built and shipped using this manufacturing process.

6. *Production*. We expect that our license agreements will provide that upon commencement of sales of wafers or devices built using MST, our customer will pay us a royalty that will be a percentage of the selling price of the wafer or device, depending on the type of customer.

While the above steps describe a typical customer engagement, we have engaged with some customers in ways that do not follow this precise order. For example, we may from time to time enter into evaluation license agreements with certain customers under which they may install MST in their fabs to run internal tests only and not for commercial use or distribution. Other potential customers may run tests on MST-treated wafers prior to further engagement with us on integration into their manufacturing process.

Our customer engagement process is refined on an ongoing basis to meet the needs of both Atomera and our customers. In order to address customers' concern about the requirement to pay for a full license prior to being sure they will enter into volume production with MST based products, Atomera has introduced a three-staged licensing approach. The first two stages represent a minority of the total license fee structure, thus lowering a customer's risk until they have internalized the process and generated enough data to justify the larger licensing stages. Atomera's three stages of licenses are: (i) the Integration stage which grants the right to integrate MST onto their products, (ii) the Manufacturing stage, which grants them the rights to manufacture in their own facilities, and (iii) the Distribution stage which grants them the right to sell products using MST.

We believe that our success is dependent upon the adoption of our MST technology through the Distribution stage by at least one IDM, foundry, or fabless semiconductor manufacturer. As of the date of this Annual Report, MST was in the integration phase on 13 different engagements. Subject to process and subsequent product qualifications that demonstrate, in commercial scale production, the enhancements we believe our MST technology offers, including increased speed, reliability and energy efficiency, we expect to license our MST technology to one or more of these companies. We are also engaged at different stages of customer development with other potential customers.

We are also working with OEMs on process development and equipment optimization to ensure that MST can be reliably and predictably deposited using their manufacturing tools. If their tools can successfully deposit MST, we believe they will promote the incorporation of our MST technology in the OEMs' EPI machines as an option to their standard offering. By doing so, we believe they will simultaneously stimulate additional sales of their capital equipment and encourage more customers to adopt MST.

Through our collaboration with Synopsys, we enable potential customers of MST to more quickly assess the potential benefits of MST to their semiconductor devices. By creating TCAD software models, we can work with manufacturers to assess

which of their product types would most benefit from MST. We believe this modeling capability has shortened the time required for us to engage with new potential customers and should ultimately lead to a faster decision process by the customer regarding licensing MST.

We market our MST technology directly to the semiconductor industry through our significant industry contacts and relationships. We also sponsor academic research and participate in industry conferences and associations. In certain foreign jurisdictions, we engage sales representatives to assist us in establishing relationships with local customers.

Customers

In September and October 2018, respectively, we entered into separate integration license agreements with Asahi Kasei Microdevices, (“AKM”), and STMicroelectronics, (“ST”), both of which are leading IDMs. Under the integration license agreements, these customers have each agreed to pay us for the right to evaluate MST technology which is integrated onto their semiconductor wafers. We deposit MST onto the customers’ wafers and the customer has the right under the license agreement to complete the manufacturing process which enables them to evaluate our technology. These agreements do not grant the customer the right to deposit MST at their site or to sell products incorporating MST. We intend that each integration license agreement will be the first of a three-stage licensing process with each of AKM and ST, to be followed by manufacturing and distribution license agreements with each of them. Those manufacturing and distribution license agreements, if executed, will allow each licensee to manufacture MST-enabled products and to sell them to their customers. We expect that the manufacturing and distribution agreements will provide for substantially larger upfront license fee payments than the integration license fees and will require the respective licensees to make royalty payments to us based on the number and sales price of MST-enabled products they sell to their customers. However, our ability to enter into royalty-based manufacturing and distribution agreements with AKM and ST will depend, in large part, on the performance of devices they build using MST and the successful integration of our MST technology on a high-volume production scale. There can be no assurance that our MST technology will deliver the performance, power or other requirements our customers seek for their products or that the integration of our technology with our customers’ manufacturing process will be successful in high volume. In addition, even if our MST technology is successfully integrated into the licensees’ products, either or both of the licensees may decide, for reasons unrelated to the price or performance of our MST technology, not to enter into manufacturing and distribution license agreements.

Competition

Our lead product, MST, is a proprietary and patent-protected performance enhancement technology that we believe addresses a number of key engineering challenges facing the semiconductor industry. We compete with IDMs, OEMs, foundries, fabless manufacturers of semiconductors and semiconductor IP licensing companies for the development and commercialization of technologies that improve the performance of semiconductors. Historically, when a new fabrication process proves to be a low-cost improvement to the standard fabrication process, and is additive, rather than in place of other performance technologies, it has been successfully adopted industry-wide. Good examples of such advances have been strained silicon and High-K/Metal-Gate. We believe that MST has the potential to be one of these low-cost additive technologies, in which case MST would not be subject to significant direct competition from other technologies.

Research and Development

The principal focus of our research and development efforts is on enabling existing and prospective customers to integrate MST into their manufacturing processes and enable them to commercialize MST-enabled semiconductor products. We also dedicate research and development resources to evolving and expanding our technology to address new process technologies in the semiconductor industry roadmap. Our research and development is conducted internally, but we work closely with third parties in the semiconductor industry to evaluate and qualify our technology for incorporation into semiconductor products and fabrication equipment. During the years ended December 31, 2018 and 2017, we incurred research and development expenses of approximately $7.3 million and $5.8 million, respectively.

We believe that our success depends in part on our ability to achieve the following in a cost-effective and timely manner:

- develop new technologies that meet the changing needs of the semiconductor industry;
- improve our existing technologies to enable growth into new application areas; and
- expand our intellectual property portfolio.

Intellectual Property Rights

We regard the protection of our technologies and intellectual property rights as an important element of our business operations and crucial to our success. We rely primarily on a combination of patent laws, trade secret laws, confidentiality procedures, and contractual provisions to protect our proprietary technology. We require our employees, consultants, and advisors to enter into confidentiality agreements. These agreements provide that all confidential information developed or made known to the individual during the course of the individual's relationship with us is to be kept confidential and not disclosed to third parties except under specific circumstances. In the case of our employees and certain consultants, the agreements provide that all of the technology that is conceived by the individual during the course of employment is our exclusive property. The development of our technology and many of our processes are dependent upon the knowledge, experience, and skills of key scientific and technical personnel.

We have been granted more than 70 patents in the U.S. and more than 55 abroad. Our core patents relating to MST cover materials, physical structures and manufacturing processes. Our core patents relating to MST were filed beginning on August 22, 2003 and have grant dates beginning on December 14, 2004. Our MST patent portfolio begins to expire commencing August 22, 2023. While we believe our core patents adequately block competitors from using our MST without our approval, there can be no assurance that one or more of our core patents would survive a legal challenge to their scope, validity, or enforceability, or provide significant protection for us. The failure of our patents, or the failure of trade secret laws, to adequately protect our technology, might make it easier for our competitors to offer similar products or technologies or for our potential customers to build products with methods and materials similar to MST without paying us a license fee. In addition, patents may not issue from any of our current or future applications.

We also hold registered trademarks in the United States for the mark "MST" and in China for the mark "Mears". We have applied with the U.S. Patent and Trademark Office for the registration of the mark "Atomera" in the United States.

Employees

As of the date of this Annual Report, we employ 17 people on a full-time basis.

Available Information

Our website is located at www.atomera.com. The information on or accessible through our website is not part of this Annual Report on Form 10-K. A copy of this Annual Report on Form 10-K is located at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Information on the operation of the Public Reference Room can be obtained by calling the SEC at 1-800-SEC-0330. The SEC also maintains an internet site that contains reports and other information regarding our filings at www.sec.gov.

Item 1A. Risk Factors

We are subject to various risks that may harm our business, prospects, financial condition and results of operation or prevent us from achieving our goals. If any of these risks occur, our business, financial condition or results of operation may be materially adversely affected. In such case, the trading price of our common stock could decline and investors could lose all or part of their investment.

Risks Related to Our Business

We only recently commenced limited revenue producing operations, so it is difficult for potential investors to evaluate our business. To date, our operations have consisted of technology research and development, testing, and joint development work with customers, potential customers and strategic partners. Our business model is to derive our revenue primarily from license fees and royalties, but to date we have only recognized minimal engineering services and licensing revenues. Our limited operating history makes it difficult to evaluate the commercial value of our technology or our prospective operations. As an early stage company, we are subject to all the risks inherent in the initial organization, financing, expenditures, complications and delays in a new business, including, without limitation:

- the timing and success of our plan of commercialization and the fact that we have not entered into a royalty-based manufacturing or distribution license with a potential customer;
- our ability to replicate on a large commercial scale the benefits of our MST technology that we have demonstrated in preliminary testing;
- our ability to structure, negotiate and enforce license agreements that will allow us to operate profitably;

- our ability to advance the licensing arrangements with our initial integration licensees, Asahi Kasei Microdevices and STMicroelectronics, to royalty-based manufacturing and distribution licenses;

- our ability to protect our intellectual property rights; and

- our ability to raise additional capital as and when needed.

We have a history of significant operating losses and anticipate continued operating losses for at least the near term. For the years ended December 31, 2018 and 2017, we have incurred net losses of approximately $12.9 million and $13.1 million, respectively, and our operations have used approximately $9.8 million and $9.3 million of cash, respectively. As of December 31, 2018, we had accumulated deficit of approximately $122.0 million. We will continue to experience negative cash flows from operations until at least such time as we are able to secure manufacturing and distribution license agreements with one or more foundries, IDMs or fabless semiconductor manufacturers. While management will endeavor to generate positive cash flows from the commercialization of our MST technology, there can be no assurance that we will be successful at doing so. If we are unable to generate positive cash flow within a reasonable period of time, we may be unable to further pursue our business plan or continue operations.

We may need additional financing to execute our business plan and fund operations, which additional financing may not be available on reasonable terms or at all. As of December 31, 2018, we had total assets of approximately $19.4 million, cash and cash-equivalents of approximately $18.9 million and working capital of approximately $17.7 million. As of the date of this Annual Report, we believe that we have sufficient capital to fund our current business plans and obligations over, at least, the 12 months following the date of this Annual Report. We also believe that we have sufficient capital to enable one or more customers to enter into a manufacturing and distribution royalty-based license agreement for our technology. However, the full qualification of a new technology like MST can take up to a year or more, and we have limited ability to influence our customers' testing and qualification processes. Accordingly, we may require additional capital prior to obtaining a royalty-based license or prior to such a license generating sufficient royalty income to cover our ongoing operating expenses. In the event we require additional capital over and above the amount of our presently available working capital, we will endeavor to seek additional funds through various financing sources, including the sale of our equity and debt securities, licensing fees for our technology and joint ventures with industry partners. In addition, we will consider alternatives to our current business plan that may enable to us to achieve material revenue producing operations and meaningful commercial success with a smaller amount of capital. However, there can be no guarantees that such funds will be available on commercially reasonable terms, if at all. If such financing is not available on satisfactory terms, we may be unable to further pursue our business plan and we may be unable to continue operations.

While we have recently entered into two integration license agreements, there can be no assurance that either relationship will lead to a royalty-based manufacturing or distribution license agreement. In September and October 2018, respectively, we entered into separate license agreements with Asahi Kasei Microdevices, or AKM, and STMicroelectronics, or ST, both of which are leading IDMs. The licensees have each agreed to pay us licensing fees for the right to build products that integrate MST technology deposited by us onto their semiconductor wafers, but the agreements do not grant the licensees the right to sell products incorporating MST. We intend that each license agreement will be the first of a three-stage licensing process with each of AKM and ST, to be followed by manufacturing and distribution license agreements with each of them. If executed, those manufacturing and distribution license agreements will allow each licensee to manufacture MST-enabled products entirely in their own facility and to sell them to their customers. We expect that the manufacturing and distribution agreements will provide for substantially larger upfront license fee payments than integration license fees and that the agreements will require the respective licensees to make royalty payments to us based the number and sales price of MST-enabled products they sell to their customers. However, our ability to enter into royalty-based manufacturing and distribution agreements with AKM and ST will depend, in large part, on the performance of devices they build using MST and the successful integration of our MST technology on a high-volume production scale. There can be no assurance that our MST technology will deliver the performance, power or other requirements our customers seek for their products or that the integration of our technology with our customers' manufacturing process will be successful in high volume. In addition, even if our MST technology is successfully integrated into the licensees' products, either or both of the licensees may decide, for reasons unrelated to the price or performance of our MST technology, not to enter into manufacturing and distribution license agreements.

While the preliminary testing of our MST technology has been successful to-date, there can be no assurance that we will be able to replicate the process, along with all of the expected economic advantages, on a large commercial scale. As of the date of this Annual Report, we have performed technology simulation work with universities and potential customers applying our MST at nodes from 180 nanometers (nm) to 5nm. Together with leading industry research facilities, at our foundry partner, TSI Semiconductors America, and in customer manufacturing facilities, we have built and tested test element group transistors using MST. The test element group transistors using MST consistently demonstrated increased speed, reliability and energy efficiency over test element group transistors without MST. While we believe that our development and testing to date has proven the

effectiveness and benefits of our MST technology, an MST-enabled product has not been qualified and manufactured on a commercial scale. Our principal focus for the next 12 months from the date of this Annual Report, will be on securing one or more foundries, IDMs (including AKM and ST), or fabless semiconductor manufacturers as a manufacturing or distribution licensee-customer and to enable that licensee-customer to start full-scale industrial production of a device that incorporates MST technology. However, there can be no assurance that we will be able to deliver the performance improvements sought by our potential manufacturing or distribution licensee customers and secure the adoption of our technology by a potential customer or, if we are successful in doing so, that an MST-enabled product manufactured on a commercial scale will provide the expected performance enhancements at the projected cost.

We expect that our product qualification and licensing cycle will be lengthy and costly, and our marketing, engineering and sales efforts may be unsuccessful. We expect to incur significant engineering, marketing and sales expenses prior to entering into any license agreements, generating a license fee and establishing a royalty stream from each licensee. The introduction of any new process technology into semiconductor manufacturing is a lengthy process and we cannot forecast the length of time it takes to establish a new licensing relationship. Based on our engagements with potential customers to date, we believe the time from initial engagement until our customers execute a license and subsequently incorporate our technologies in their integrated circuits, can take 18 to 36 months or longer. Our integration license agreements with AKM and ST do not commit either customer to manufacturing or distribution licenses and we expect both customers to perform additional tests on evaluation wafers under their respective integration licenses before deciding whether to enter the next stages of licensing MST. As such, we will incur additional expenses in our engagements with AKM and ST before we receive license fees, if any, for manufacturing and distribution and before any subsequent royalty stream begins. While we believe that licensing of MST with AKM and ST could accelerate licensing decisions by other customers, the evaluation process for new technologies in the semiconductor industry is inherently long and complex and there can be no assurance that we will successfully convert other customer prospects into paying customers or that any of these customers will generate sufficient revenue to cover our expenses.

Qualification of our MST technology requires access to our potential customers' manufacturing tools and facilities, which may not be available on a timely basis or at all. The qualification of a new process technology like MST entails the integration of our MST film into the complex manufacturing processes employed by our potential customers. In order to validate the benefits of MST, our customer engagement process involves fabrication of wafers that incorporate MST deposited by us using our epitaxial deposition tools and then completing the manufacturing of the wafers in our customers' facilities using their tools. The semiconductor industry in 2018 surpassed $450 billion in sales, which is the highest level in history, resulting in tight capacity among our potential customers. Accordingly, we have experienced delays in completing the processing of evaluation wafers by our customers as those customers prioritize utilization of their equipment for production use. Although we have secured dedicated access to epitaxial deposition equipment for the steps performed by us, we may need to secure additional equipment to support customer evaluations and we cannot guarantee that said equipment, facilities and personnel will be available to us in the necessary timeframe or on favorable terms. If our customers do not dedicate their equipment and facilities to testing our products in a timely fashion, we may experience delays that will increase our expenses and delay our customers' decisions on entering into a commercial license with us.

The long-term success of our business is dependent on a royalty-based business model, which is inherently risky. The long-term success of our business is dependent on future royalties paid to us by licensee-customers, whose business requires them to market products to their end customers. Royalty payments under our licenses may be based, among other things, upon the number of wafers onto which our MST is deposited or a percentage of the net sales of MST-enabled products. We will depend upon our ability to structure, negotiate and enforce agreements for the determination and payment of royalties, as well as upon our licensees' compliance with their agreements. We face risks inherent in a royalty-based business model, many of which are outside of our control, such as the following:

- the rate of adoption and incorporation of our technology by semiconductor designers and manufacturers and the manufacturers of semiconductor fabrication equipment;
- our licensee customer's ability to successfully market MST-enabled products to their end customers;
- the length of the design cycle and the ability to successfully integrate our MST technology into integrated circuits;
- the demand for products incorporating semiconductors that use our licensed technology;
- the cyclicality of supply and demand for products using our licensed technology;
- the impact of economic downturns; and
- the timing of receipt of royalty reports, and the applicable revenue recognition criteria, which may result in fluctuation in our results of operations.

Our revenues may be concentrated in a few customers and if we lose any of these customers, or these customers do not pay us, our revenues could be materially adversely affected. If we are able to secure the adoption of our MST by one or more foundries, IDMs or fabless semiconductor manufacturers, we expect that for at least the first few years, substantially all of our revenue will be generated from license fees and engineering services before customers commence royalty-bearing shipments. Due to the concentration and ongoing consolidation within the semiconductor industry, we may also find that over the longer term our revenues are dependent on a relatively few customers. If we lose any of these customers, or these customers do not pay us, our revenues could be materially adversely affected.

It may be difficult for us to verify royalty amounts owed to us under our licensing agreements, and this may cause us to lose revenues. We will endeavor to provide that the terms of our license agreements require our licensees to document their use of our technology and report related data to us on a regular basis. We will endeavor to provide that the terms of our license agreements give us the right to audit books and records of our licensees to verify this information, however audits can be expensive, time consuming, and may not be cost justified based on our understanding of our licensees' businesses. We will endeavor to audit certain licensees to review the accuracy of the information contained in their royalty reports in an effort to decrease the likelihood that we will not receive the royalty revenues to which we are entitled under the terms of our license agreements, but we cannot give assurances that such audits will be effective to that end.

Our business operations could suffer in the event of information technology systems' failures or security breaches. While we believe that we have implemented adequate security measures within our internal information technology and networking systems, our information technology systems may be subject to security breaches, damages from computer viruses, natural disasters, terrorism, and telecommunication failures. Any system failure or security breach could cause interruptions in our operations, including but not limited to our TCAD modeling using Synopsys software, in addition to the possibility of losing proprietary information and trade secrets. To the extent that any disruption or security breach results in inappropriate disclosure of our confidential information, our competitive position may be adversely affected, and we may incur liability or additional costs to remedy the damages caused by these disruptions or security breaches.

If we fail to protect and enforce our intellectual property rights and our confidential information, our business will suffer. We rely primarily on a combination of nondisclosure agreements and other contractual provisions and patent, trade secret and copyright laws to protect our technology and intellectual property. If we fail to protect our technology and intellectual property, our licensees and others may seek to use our technology and intellectual property without the payment of license fees and royalties, which could weaken our competitive position, reduce our operating results and increase the likelihood of costly litigation. The growth of our business depends in large part on our ability to secure intellectual property rights in a timely manner, our ability to convince third parties of the applicability of our intellectual property rights to their products, and our ability to enforce our intellectual property rights. In certain instances, we attempt to obtain patent protection for portions of our technology, and our license agreements typically include both issued patents and pending patent applications as well as our proprietary know-how. If we fail to obtain patents in a timely manner or if the patents issued to us do not cover all of the inventions disclosed in our patent applications, others could use portions of our technology and intellectual property without the payment of license fees and royalties.

We also rely on trade secret laws rather than patent laws to protect other portions of our proprietary technology. However, trade secrets can be difficult to protect. The misappropriation of our trade secrets or other proprietary information could seriously harm our business. We protect our proprietary technology and processes, in part, through confidentiality agreements with our employees, consultants, suppliers and customers. We cannot be certain that these contracts have not been and will not be breached, that we will be able to timely detect unauthorized use or transfer of our technology and intellectual property, that we will have adequate remedies for any breach, or that our trade secrets will not otherwise become known or be independently discovered by competitors. If we fail to use these mechanisms to protect our technology and intellectual property, or if a court fails to enforce our intellectual property rights, our business will suffer. We cannot be certain that these protection mechanisms can be successfully asserted in the future or will not be invalidated or challenged.

Further, the laws and enforcement regimes of certain countries do not protect our technology and intellectual property to the same extent as do the laws and enforcement regimes of the U.S. In certain jurisdictions, we may be unable to protect our technology and intellectual property adequately against unauthorized use, which could adversely affect our business.

A court invalidation or limitation of our key patents could significantly harm our business. Our patent portfolio contains some patents that are particularly significant to our MST technology and other business prospects. If any of these key patents are invalidated, or if a court limits the scope of the claims in any of these key patents, the likelihood that companies will take new licenses and that any current licensees will continue to agree to pay under their existing licenses could be significantly reduced. The resulting loss in license fees and royalties could significantly harm our business. Moreover, our stock price may fluctuate based on developments in the course of ongoing litigation.

We may become involved in material legal proceedings in the future to enforce or protect our intellectual property rights, which could harm our business. From time to time, we may identify products that we believe infringe our patents. In that event, we expect to initially seek to license the manufacturer of the infringing products, however if the manufacturer is unwilling to enter into a license agreement, we may have to initiate litigation to enforce our patent rights against those products. Litigation stemming from such disputes could harm our ability to gain new customers, who may postpone licensing decisions pending the outcome of the litigation or who may, as a result of such litigation, choose not to adopt our technologies. Such litigation may also harm our relationships with existing licensees, who may, as a result of such litigation, cease making royalty or other payments to us or challenge the validity and enforceability of our patents or the scope of our license agreements.

In addition, the costs associated with legal proceedings are typically high, relatively unpredictable and not completely within our control. These costs may be materially higher than expected, which could adversely impair our working capital, affect our operating results and lead to volatility in the price of our common stock. Whether or not determined in our favor or ultimately settled, litigation diverts our managerial, technical, legal and financial resources from our business operations. Furthermore, an adverse decision in any of these legal actions could result in a loss of our proprietary rights, subject us to significant liabilities, require us to seek licenses from others, limit the value of our licensed technology or otherwise negatively impact our stock price or our business and financial position, results of operations and cash flows.

Even if we prevail in our legal actions, significant contingencies may exist to their settlement and final resolution, including the scope of the liability of each party, our ability to enforce judgments against the parties, the ability and willingness of the parties to make any payments owed or agreed upon and the dismissal of the legal action by the relevant court, none of which are completely within our control. Parties that may be obligated to pay us royalties could be insolvent or decide to alter their business activities or corporate structure, which could affect our ability to collect royalties from such parties.

Our technologies may infringe on the intellectual property rights of others, which could lead to costly disputes or disruptions. The semiconductor industry is characterized by frequent allegations of intellectual property infringement. Any allegation of infringement could be time consuming and expensive to defend or resolve, result in substantial diversion of management resources, cause suspension of operations or force us to enter into royalty, license, or other agreements rather than dispute the merits of such allegation. Furthermore, third parties making such claims may be able to obtain injunctive or other equitable relief that could block our ability to further develop or commercialize some or all of our technologies, and the ability of our customers to develop or commercialize their products incorporating our technologies, in the U.S. and abroad. If patent holders or other holders of intellectual property initiate legal proceedings, we may be forced into protracted and costly litigation. We may not be successful in defending such litigation and may not be able to procure any required royalty or license agreements on acceptable terms or at all.

If we are unable to manage future expansion effectively, our business, operations and financial condition may suffer significantly, resulting in decreased productivity. If our MST proves to be commercially valuable, it is likely that we will experience a rapid growth phase that could place a significant strain on our managerial, administrative, technical, operational and financial resources. Our organization, procedures and management may not be adequate to fully support the expansion of our operations or the efficient execution of our business strategy. If we are unable to manage future expansion effectively, our business, operations and financial condition may suffer, resulting in decreased productivity.

If integrated circuits incorporating our technologies are used in defective products, we may be subject to product liability or other claims. If our MST technology is used in defective or malfunctioning products, we could be sued for damages, especially if the defect or malfunction causes physical harm to people. While we will endeavor to carry product liability insurance, contractually limit our liability and obtain indemnities from our customers, there can be no assurance that we will be able to obtain insurance at satisfactory rates or in adequate amounts or that any insurance and customer indemnities will be adequate to defend against or satisfy any claims made against us. The costs associated with legal proceedings are typically high, relatively unpredictable and not completely within our control. Even if we consider any such claim to be without merit, significant contingencies may exist, similar to those summarized in the above risk factor concerning intellectual property litigation, which could lead us to settle the claim rather than incur the cost of defense and the possibility of an adverse judgment. Product liability claims in the future, regardless of their ultimate outcome, could have a material adverse effect on our business, financial condition and reputation, and on our ability to attract and retain licensees and customers.

Risks Related to Owning Our Common Stock

Our stock price has been volatile and thinly traded. Our common stock has traded on the Nasdaq Capital Market since August 5, 2016. Our common stock has been relatively thinly traded, with an average daily trading volume of approximately 42,000 shares and prices ranging from a low of $2.33 to a high of $10.25 in the period from August 5, 2016 through December 31, 2018. There can be no assurance that the market for our common shares will become more liquid. The stock market in general, and early stage public companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of such companies. If we are unable to increase the trading volume for our common

shares, you may not be able to sell your common shares at prices you consider to be fair or at times that are convenient for you, or at all.

We are an "emerging growth company" under the JOBS Act of 2012 and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors. We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 ("JOBS Act"), and we may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies" including, but not limited to:

- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act;
- reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements;
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments; and
- extended transition periods available for complying with new or revised accounting standards.

We have chosen to "opt out" of the extended transition periods available for complying with new or revised accounting standards, but we intend to take advantage of all of the other benefits available under the JOBS Act, including the exemptions discussed above. If some investors find our common stock less attractive as a result of our reliance on these exemptions, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will remain an "emerging growth company" until December 31, 2021, although we will lose that status sooner if our revenues exceed $1.07 billion, if we issue more than $1 billion in non-convertible debt in a three-year period, or if the market value of our common stock that is held by non-affiliates exceeds $700 million as of any June 30.

Our status as an "emerging growth company" under the JOBS Act may make it more difficult to raise capital as and when we need it. Because of the exemptions from various reporting requirements provided to us as an "emerging growth company," we may be less attractive to investors and it may be difficult for us to raise additional capital when we need it or on favorable terms. Investors may be unable to compare our business with other companies in our industry if they believe that our reporting is not as transparent as other companies in our industry. If we are unable to raise additional capital as and when we need it, our financial condition and results of operations may be materially and adversely affected.

We have not paid dividends in the past and have no immediate plans to pay dividends. We plan to reinvest all of our earnings, to the extent we have earnings, to cover operating costs and otherwise become and remain competitive. We do not plan to pay any cash dividends with respect to our securities in the foreseeable future. We cannot assure you that we would, at any time, generate sufficient surplus cash that would be available for distribution to the holders of our common stock as a dividend. Therefore, you should not expect to receive cash dividends on our common stock.

We expect to continue to incur significant increased costs as a result of being a public company that reports to the Securities and Exchange Commission and our management will be required to devote substantial time to meet compliance obligations. As a public company reporting to the Securities and Exchange Commission, we incur significant legal, accounting and other expenses that we did not incur as a private company. We are subject to reporting requirements of the Securities Exchange Act of 1934 and the Sarbanes-Oxley Act of 2002, as well as rules subsequently implemented by the Securities and Exchange Commission that impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. In addition, on July 21, 2010, the Dodd-Frank Wall Street Reform and Protection Act was enacted. There are significant corporate governance and executive compensation-related provisions in the Dodd-Frank Act that increased our legal and financial compliance costs, make some activities more difficult, time-consuming or costly and may also place undue strain on our personnel, systems and resources. Our management and other personnel devote a substantial amount of time to these compliance initiatives. In addition, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. As a result, it may be more difficult for us to attract and retain qualified people to serve on our board of directors, our board committees or as executive officers.

Our charter documents and Delaware law may inhibit a takeover that stockholders consider favorable. Provisions of our certificate of incorporation and bylaws and applicable provisions of Delaware law may delay or discourage transactions involving an actual or potential change in control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. The provisions in our certificate of incorporation and bylaws:

- limit who may call stockholder meetings;
- do not permit stockholders to act by written consent;
- allow us to issue blank check preferred stock without stockholder approval;
- do not provide for cumulative voting rights; and
- provide that all vacancies may be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum.

In addition, Section 203 of the Delaware General Corporation Law may limit our ability to engage in any business combination with a person who beneficially owns 15% or more of our outstanding voting stock unless certain conditions are satisfied. This restriction lasts for a period of three years following the share acquisition. These provisions may have the effect of entrenching our management team and may deprive you of the opportunity to sell your shares to potential acquirers at a premium over prevailing prices. This potential inability to obtain a control premium could reduce the price of our common stock.

Our bylaws designate the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain litigation that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with the Company. Our bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim against us or any our directors, officers or other employees arising pursuant to any provision of the Delaware General Corporation Law or our certificate of incorporation or bylaws, or (iv) any action asserting a claim against us or any our directors, officers or other employees governed by the internal affairs doctrine. This forum selection provision in our bylaws may limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or any our directors, officers or other employees.

Our board of directors may issue blank check preferred stock, which may affect the voting rights of our holders and could deter or delay an attempt to obtain control of us. Our board of directors is authorized, without stockholder approval, to issue preferred stock in series and to fix and state the voting rights and powers, designation, preferences and relative, participating, optional or other special rights of the shares of each such series and the qualifications, limitations and restrictions thereof. Preferred stock may rank prior to our common stock with respect to dividends rights, liquidation preferences, or both, and may have full or limited voting rights. If issued, such preferred stock would increase the number of outstanding shares of our capital stock, adversely affect the voting power of holders of our common stock and could have the effect of deterring or delaying an attempt to obtain control of us.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties

Our executive offices are presently located in a 3,396 square foot facility in Los Gatos, California pursuant to a three-year lease, expiring on January 31, 2021, at the rate of $13,401 per month effective February 1, 2019.

We lease shared office space in Cambridge Massachusetts from which we conduct certain research activities. The Cambridge facilities are occupied pursuant to a month-to-month lease at a rate of $2,619 per month effective January 1, 2019.

Item 3. Legal Proceedings

To our knowledge, as of the date of this Annual Report, there are no pending legal proceedings to which we or our properties are subject.

Item 4. Mine Safety Disclosures

Inapplicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities Market Information

Our common stock has traded on the NASDAQ Capital Market under the symbol "ATOM," since November 14, 2016. Between our IPO on August 5, 2016 and November 11, 2016, our common stock traded on the NASDAQ Capital Market under the symbol "ATMR".

Holders of Record

As of March 7, 2019, there were 256 holders of record of our common stock.

Dividend Policy

We have never declared or paid cash dividends on our common stock. We presently intend to retain earnings, if any, to finance the operation and expansion of our business.

Item 6. Selected Financial Data

As a "smaller reporting company" under Item 10 of Regulation S-K, we are not required to provide the information under this item.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of the financial condition and results of operations of Atomera Incorporated should be read in conjunction with our financial statements and the accompanying notes that appear elsewhere in this Annual Report. Statements in this Annual Report on Form 10-K include forward-looking statements based upon current expectations that involve risks and uncertainties, such as our plans, objectives, expectations and intentions. We use words such as "anticipate," "estimate," "plan," "project," "continuing," "ongoing," "expect," "believe," "intend," "may," "will," "should," "could," and similar expressions to identify forward-looking statements. Although forward-looking statements in this Annual Report reflect the good faith judgment of our management, such statements can only be based on facts and factors currently known by us. Consequently, forward-looking statements are inherently subject to risks, uncertainties, and changes in condition, significance, value and effect, including those risk factors set forth in this Annual Report. Such risks, uncertainties and changes in condition, significance, value and effect could cause our actual results to differ materially from those expressed herein and in ways not readily foreseeable. Readers are urged not to place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report and are based on information currently and reasonably known to us. We undertake no obligation to revise or update any forward-looking statements in order to reflect any event or circumstance that may arise after the date of this Annual Report. Readers are urged to carefully review and consider the various disclosures made in this Annual Report, which attempt to advise interested parties of the risks and factors that may affect our business, financial condition, results of operations and prospects.

Overview

We are engaged in the business of developing, commercializing and licensing proprietary processes and technologies for the $450+ billion semiconductor industry. Our lead technology, named Mears Silicon Technology™, or MST®, is a thin film of reengineered silicon, typically 100 to 300 angstroms (or approximately 20 to 60 silicon atomic unit cells) thick. MST can be applied as a transistor channel enhancement to CMOS-type transistors, the most widely used transistor type in the semiconductor industry. MST is our proprietary and patent-protected performance enhancement technology that we believe addresses a number of key engineering challenges facing the semiconductor industry. We believe that by incorporating MST, transistors can be smaller, with increased speed, reliability and energy efficiency. In addition, since MST is an additive and low cost technology, we believe it can be deployed on an industrial scale, with machines commonly used in semiconductor manufacturing. We believe that MST can be widely incorporated into the most common types of semiconductor products, including analog, logic, optical and memory integrated circuits.

We do not intend to design or manufacture integrated circuits directly. Instead, we intend to develop and license technologies and processes that we believe will offer the designers and manufacturers of integrated circuits a low-cost solution to the industry need for greater performance and lower power consumption. Our customers and partners are expected to include:

- foundries, which manufacture integrated circuits on behalf of fabless manufacturers;

- integrated device manufacturers, or IDMs, which are the fully integrated designers and manufacturers of integrated circuits;
- fabless semiconductor manufacturers, which are designers of integrated circuits who outsource the manufacture of their chips to foundries;
- original equipment manufacturers, or OEMs, that manufacture the epitaxial, or EPI, machines used to deposit semiconductor layers, such as the MST film, onto the base silicon wafer; and
- electronic design automation companies, which make software tools used throughout the industry to simulate performance of semiconductor products using different materials, design structures and process technologies.

We intend to generate revenue through licensing arrangements whereby foundries and IDMs pay us a license fee for their right to use MST technology in the manufacture of silicon wafers as well as a royalty for each silicon wafer or device that incorporates our MST technology. We also intend to enter into licensing arrangements with fabless semiconductor manufacturers pursuant to which we will charge them a royalty for each device they sell that incorporates our MST technology.

We were organized as a Delaware limited liability company under the name Nanovis LLC on November 26, 2001. On March 13, 2007, we converted to a Delaware corporation under the name Mears Technologies, Inc. On January 12, 2016, we changed our name to Atomera Incorporated.

On March 17, 2015, we completed the private placement of $14.75 million in senior secured convertible promissory notes, which we issued for cash consideration of $7.40 million and the exchange for previously issued promissory notes that at the time of exchange had principal and accrued interest in the aggregate amount of $7.35 million. On April 1, 2016 we completed the private placement of an additional $5.96 million in senior secured convertible notes on the same terms as the promissory notes placed in March 2015. We refer to these promissory notes in this Annual Report as our "Secured Notes."

On August 10, 2016, we closed our initial public offering of 3,680,000 share of common stock at a public offering price of $7.50 per share. The common stock included 480,000 shares sold as a result of the underwriter's exercise in full of its overallotment option. Gross proceeds to us from this offering were $27,600,000 before deducting underwriting discounts, commissions and other offering expenses. In accordance with the terms of the Secured Notes, all principal plus accrued interest (totaling approximately $23.5 million) converted automatically upon consummation of the IPO into 6,264,659 million shares of common stock.

On October 15, 2018, we closed an underwritten public offering of 2,625,000 shares of common stock at a public offering price of $4.75 per share. We received approximately $11.4 million of net proceeds after deducting underwriting discounts and commission and other estimated offering expenses.

Results of Operations for the Years Ended December 31, 2018 and 2017

Revenues. To date, we have only generated limited revenue from customer engagements for integration engineering services and integration license agreements. In the future, we expect to collect increased fees from license agreements and royalties from customer sales of products that incorporate our MST technology, subject to our ability to enter into manufacturing and distribution license agreements with our current and future licensees. Our integration services consist of depositing our MST film on semiconductor wafers, delivering such wafers to customers to finalize building devices, and performing tests for customers evaluating MST. The integration license agreements we have entered into to date grant the licensees the right to build products that integrate our MST technology deposited by us onto their semiconductor wafers, but the agreements do not grant the licensees the rights to manufacture on their site or to sell products incorporating MST. Revenue is recognized upon transfer of control of promised products, services or intellectual property (IP) rights in an amount that reflects the consideration that we expect to receive in exchange for those products, services or licensing of IP rights. The integration license agreements that we currently have in place do not specify the number of wafers to be delivered by us, so we recognize revenue over the period during which we estimate that we will deliver wafers under each contract.

Revenue for the year ended December 31, 2018 and 2017 was approximately $246,000 and $110,000, respectively. Our revenue in 2018 was generated from integration services engagements and integration license agreements. Our revenue in 2017 was generated from integration services engagements.

Cost of Revenue. Cost of revenue consists of costs of materials, as well as direct compensation and expenses incurred to provide integration engineering services. Cost of revenue was approximately $148,000 and $39,000 for the years ended December

31, 2018 and 2017, respectively. We anticipate that our cost of revenue will vary substantially depending on the mix of integration license and integration engineering services and the nature of products and/or services delivered in each customer engagement.

Operating Expenses. Operating expenses consist of research and development, general and administrative, and selling and marketing expenses. For the years ended December 31, 2018 and 2017 our operating expenses totaled approximately $13.2 million and $13.3 million, respectively.

Research and development expense. To date, our operations have focused on the research, development, patent protection, and commercialization of our processes and technologies, including our proprietary and patent-protected MST performance enhancement technology. Our research and development costs primarily consist of payroll and benefit costs for our engineering staff and costs of outsourced fabrication and metrology of semiconductor wafers incorporating our MST technology.

For the years ended December 31, 2018 and 2017, we incurred approximately $7.3 million and $5.8 million, respectively, of research and development expense, an increase of approximately $1.5 million or 26%. The increase in research and development expense is primarily due to an increase of approximately $952,000 in spending on outsourced fabrication and metrology to support increased engagements with customers evaluating MST, an increase of approximately $463,000 in payroll expense reflecting an increase in engineering headcount and accrued bonuses and an increase in stock-based compensation expense of approximately $123,000 which was offset by approximately $64,000 decrease in professional fees.

General and administrative expense. General and administrative expenses consist primarily of payroll and benefit costs for administrative personnel, office-related costs and professional fees. General and administrative costs for the years ended December 31, 2018 and 2017 were approximately $5.0 million and $5.8 million, respectively, representing a decrease of approximately $840,000 or 14%. The decrease is costs was primarily due to a decrease of approximately $1.1 million in stock compensation expense. Stock compensation expense for the year ended December 31, 2017 included the full vesting of restricted stock grants made to certain members of our board of directors in connection with the completion of our initial public offering in August 2016. This decrease was partially offset by an approximate $256,000 increase in payroll related costs due to an increase in salaries and projected bonuses accrued for 2018 as compared to 2017.

Selling and marketing expense. Selling and marketing expenses consist primarily of salary and benefits for our sales and marketing personnel and business development consulting services. Selling and marketing expenses for the years ended December 31, 2018 and 2017 were approximately $1.0 million and $1.7 million, respectively, representing a decrease of approximately $702,000, or 42%. The decrease primarily related to an approximate $632,000 decrease in stock compensation expense and an approximate $114,000 decrease in consulting expense. These decreases were offset by approximate $56,000 in payroll and related costs due to the increase in expected bonuses accrued for 2018 as compared to 2017.

Interest income. Interest income for the years ended December 31, 2018 and 2017 was approximately $236,000 and $148,000, respectively. Interest income for each period related to interest earned on our cash and cash equivalents.

Liquidity and Capital Resources

On October 15, 2018 we closed an underwritten public offering of 2,625,000 shares of our common stock at a public offering price of $4.75 per share, pursuant to our Registration Statement on Form S-3. We received approximately $11.4 million of net proceeds, after deducting underwriting discounts and commissions and other estimate offering expenses

As of December 31, 2018, we had cash and cash equivalents of approximately $18.9 million and working capital of approximately $17.7 million. For the year ended December 31, 2018, we had a net loss of approximately $12.9 million and used approximately $9.8 million of cash and cash equivalents in operations. Since inception, we have incurred recurring operating losses. At December 31, 2018, we had an accumulated deficit of approximately $122.0 million.

As of the date of this report, we believe that our available working capital is sufficient to fund our presently forecasted working capital requirements for, at least, the next 12 months following the date of the filing of this report. However, the semiconductor industry is generally slow to adopt new manufacturing process technologies and conducts long testing and qualification processes which we have limited ability to control, and there can be no assurance of the timing of our receipt of meaningful amounts of revenue.

If we are not able to generate sufficient revenue from license fees and royalties in a timeframe that satisfies our cash needs, we will need to raise more capital. In the event we require additional capital, we will endeavor to acquire additional funds through various financing sources, including follow-on equity offerings, debt financing and joint ventures with industry partners. In addition, we will consider alternatives to our current business plan that may enable to us to achieve revenue-producing operations and meaningful commercial success with a smaller amount of capital. However, there can be no guarantees that additional capital,

whether under the S-3 Registration Statement or otherwise, will be available on commercially reasonable terms, if at all. If such financing is not available on satisfactory terms, we may be unable to further pursue our business plan and we may be unable to continue operations.

Cash Flows from Operating, Investing and Financing Activities:

Net cash used in operating activities of approximately $9.8 million for year ended December 31, 2018 resulted primarily from our net loss of approximately $12.9 million adjusted by approximately $2.4 million for stock-based compensation expense and an increase of approximately $472,000 in accrued payroll expenses.

Net cash used in operating activities of approximately $9.3 million for year ended December 31, 2017 resulted primarily from our net loss of approximately $13.1 million adjusted by approximately $4.1 million for stock-based compensation expense and an increase of approximately $152,000 in prepaids and other assets and decrease of approximately $155,000 in accounts payable.

Net cash used by investing activities of approximately $23,000 and approximately $60,000 for the years ended December 31, 2018 and 2017, respectively, consisted of the purchase of property and equipment.

Net cash provided by financing activities of approximately $11.4 million for the year ended December 31, 2018 related to the net proceeds from our public offering in October 2018. No cash was used in or provided by financing activities for the year ended December 31, 2017.

Off-Balance Sheet Arrangements

We have not entered into off-balance sheet arrangements or issued guarantees to third parties.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Not applicable.

Item 8. Financial Statements and Supplementary Data

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of
Atomera Incorporated

Opinion on the Financial Statements

We have audited the accompanying balance sheets of Atomera Incorporated (the "Company") as of December 31, 2018 and 2017, the related statements of operations, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Marcum LLP

Marcum LLP

We have served as the Company's auditor since 2015.

New York, NY
March 11, 2019

Atomera Incorporated
Balance Sheets
(in thousands, except per share data)

	December 31,	
	2018	**2017**
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 18,933	$ 17,369
Accounts receivable	185	110
Prepaid expenses and other current assets	170	248
Total current assets	19,288	17,727
Property and equipment, net	56	67
Security deposit	13	13
Total assets	$ 19,357	$ 17,807
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 348	$ 198
Accrued expenses	224	239
Accrued payroll related expenses	984	512
Deferred revenue	55	-
Total liabilities	1,611	949
Commitments and contingencies (see Note 7)		
Stockholders' equity:		
Preferred stock, $0.001 par value, authorized 2,500 shares; none issued and outstanding at December 31, 2018 and 2017	–	–
Common stock, $0.001 par value, authorized 47,500 shares; 15,034 shares issued and outstanding at December 31, 2018 and 12,161 issued and outstanding as of December 31, 2017	15	12
Additional paid-in capital	139,693	125,911
Accumulated deficit	(121,962)	(109,065)
Total stockholders' equity	17,746	16,858
Total liabilities and stockholders' equity	$ 19,357	$ 17,807

The accompanying notes are an integral part of these financial statements.

Atomera Incorporated
Statements of Operations
(in thousands, except per share data)

	Years Ended December 31,	
	2018	**2017**
Revenue:	$ 246	$ 110
Cost of revenue	148	39
Gross margin	98	71
Operating Expenses:		
Research and development	7,318	5,826
General and administrative	4,956	5,796
Selling and marketing	957	1,659
Total operating expenses	13,231	13,281
Loss from operations	(13,133)	(13,210)
Other income/(expense):		
Interest income	236	148
Other expense	-	(6)
Total other income, net	236	142
Net loss	$ (12,897)	$ (13,068)
Net loss per common share, basic and diluted (2017 Restated)	$ (1.02)	$ (1.11)
Weighted average number of common shares outstanding, basic and diluted (2017 Restated)	12,655	11,773

The accompanying notes are an integral part of these financial statements.

Atomera Incorporated
Statement of Stockholders' Equity
(in thousands)

	Common Stock		Additional	Accumulated	Total Stockholders'
	Shares	Amount	Paid-in Capital	Deficit	Equity
Balance January 1, 2017	12,025	12	121,833	(95,997)	25,848
Stock-based compensation	126	–	4,018	–	4,018
Common stock issued for services	10	–	60	–	60
Net loss	–	–	–	(13,068)	(13,068)
Balance December 31, 2017	12,161	12	125,911	(109,065)	16,858
Stock-based compensation	248	–	2,425	–	2,425
Issuance of common stock in connection with October 15, 2018 offering, net of commissions, expenses and other offering costs	2,625	3	11,357	–	11,360
Net loss	–	–	–	(12,897)	(12,897)
Balance December 31, 2018	15,034	$ 15	$ 139,693	$ (121,962)	$ 17,746

The accompanying notes are an integral part of these financial statements.

Atomera Incorporated
Statements of Cash Flows
(in thousands)

	Years Ended December 31,	
	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES		
Net Loss	$ (12,897)	$ (13,068)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	33	19
Stock-based compensation	2,425	4,018
Common stock issued for services	–	60
Loss on disposal of assets	1	2
Changes in operating assets and liabilities:		
Accounts receivable	(75)	(110)
Prepaid expenses and other current assets	78	(152)
Security deposit	–	24
Accounts payable	150	(155)
Accrued expenses	(15)	71
Accrued payroll expenses	472	2
Deferred revenue	55	–
Net cash used in operating activities	(9,773)	(9,289)
CASH FROM INVESTING ACTIVITIES		
Acquisition of property and equipment	(23)	(60)
Net cash used in investing activities	(23)	(60)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from public offering, net	11,360	–
Net cash provided by financing activities	11,360	–
Net increase/(decrease) in cash and cash equivalents	1,564	(9,349)
Cash and cash equivalents at beginning of year	17,369	26,718
Cash and cash equivalents at end of year	$ 18,933	$ 17,369

The accompanying notes are an integral part of these financial statements.

Atomera Incorporated
Notes to the Financial Statements

1. NATURE OF OPERATIONS

Atomera Incorporated ("Atomera" or the "Company") was incorporated in the state of Delaware in March 2007 under the name MEARS Technologies, Inc. and is engaged in the development, commercialization and licensing of proprietary processes and technologies for the semiconductor industry. On January 12, 2016, the Company changed its name to Atomera Incorporated.

The Company is in the development stage, having only recently begun limited revenue-generating activities, and is devoting substantially all of its efforts toward technology research and development. The Company has primarily financed operations through private placements of equity and debt securities and the Company's Initial Public Offering (the "IPO") which was consummated on August 10, 2016, and its underwritten public offering of common stock which was consummated on October 15, 2018 (see Note 8).

2. LIQUIDITY AND MANAGEMENT PLANS

At December 31, 2018, the Company had cash and cash equivalents of approximately $18.9 million and working capital of approximately $17.7 million. The Company has only generated limited revenues since inception and has incurred recurring operating losses. At December 31, 2018, the Company had an accumulated deficit of approximately $122.0 million.

The Company's operating plans for the next 12 months include increased headcount in research and development and increased spending on outsourced fabrication and testing. Based on the funds it has available as of the date of the filing of this report, the Company believes that it has sufficient capital to fund its current business plans and obligations over, at least, 12 months from the date that these financial statements have been issued. However, as the Company has not yet generated recurring revenue from planned principal operations, it is subject to all the risks inherent in the initial organization, financing, expenditures, complications and delays in a new business. Accordingly, the Company may require additional capital, the receipt of which cannot be assured. In the event the Company requires additional capital, there can be no guarantee that funds will be available on commercially reasonable terms, if at all.

3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of presentation

The financial statements are presented in accordance with accounting principles generally accepted in the United States of America ("GAAP") and reflect the financial position, results of operations and cash flows for all periods presented.

Fair Value of Financial Instruments

Authoritative guidance requires disclosure of the fair value of financial instruments. The Company's financial instruments consist of cash and cash equivalents, accounts receivable and accounts payable, the carrying amounts of which approximate their estimated fair values primarily due to the short-term nature of the instruments or based on information obtained from market sources and management estimates. The Company measures the fair value of certain of its financial assets and liabilities on a recurring basis. A fair value hierarchy is used to rank the quality and reliability of the information used to determine fair values. Financial assets and liabilities carried at fair value which is not equivalent to cost will be classified and disclosed in one of the following three categories:

Level 1 — Quoted prices (unadjusted) in active markets for identical assets and liabilities.

Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as unadjusted quoted prices for similar assets and liabilities, unadjusted quoted prices in the markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Cash and cash equivalents

The Company maintains its operating accounts in a single reputable financial institution. The balances are insured by the U.S. Federal Deposit Insurance Corporation ("FDIC") up to specified limits. The Company's cash and cash equivalents are maintained in checking accounts and money market funds with maturities of less than three months when purchased, which are

readily convertible to known amounts of cash, and which in the opinion of management are subject to insignificant risk of loss in value.

Concentration of Credit Risk and Major Customers

Financial instruments, which potentially subject the Company to concentrations of credit risk, consist principally of cash, cash equivalents and accounts receivable. During the year ended December 31, 2018, three customers each represented 72%, 20% and 8% of revenues and 43%, 30% and 27% of the accounts receivable balance at December 31, 2018. During the year ended December 31, 2017, one customer represented 100% of revenues and 100% of the accounts receivable balance at December 31, 2017.

At times, the amounts on deposit at the financial institution exceed the federally insured limits. Management believes that the financial institutions which hold the Company's cash is financially sound and, accordingly, minimal credit risk exists. As of December 31, 2018 and 2017, the Company's cash balances were in excess of insured limits maintained at the financial institution.

Accounts Receivable

The Company grants credit to its business customers. Collateral is generally not required for trade receivables. The Company maintains allowances for potential credit losses when necessary. Trade accounts receivable are recorded net of allowances for cash discounts for prompt payment, doubtful accounts, and sales returns.

The Company's policy is to reserve for uncollectible accounts based on its best estimate of the amount of probable credit losses in its existing accounts receivable. The Company periodically reviews its accounts receivable to determine whether an allowance for doubtful accounts is necessary based on an analysis of past due accounts and other factors that may indicate that the realization of an account may be in doubt. Other factors that the Company considers include its existing contractual obligations, historical payment patterns of its customers and individual customer circumstances, and an analysis of days sales outstanding by customer. Account balances deemed to be uncollectible are charged to the allowance after all means of collection have been exhausted and the potential for recovery is considered remote. At December 31, 2018 and 2017, there were no allowances for doubtful accounts since the balances were subsequently collected. Any allowances recorded are included in Accounts Receivable, net in the accompanying balance sheets.

Impairment of long-lived assets

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that it is more likely than not that the asset's carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with authoritative guidance which requires the Company to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. During the years ended December 31, 2018 and 2017, the Company had noted no indicators of impairment.

Property and equipment

Items capitalized as property and equipment are stated at cost. Maintenance and routine repairs are charged to operations when incurred, while betterments and renewals are capitalized. Depreciation and amortization are computed using he straight-line method over the estimated useful lives of the respective assets starting when the asset is placed in service.

Common stock warrants

The Company classifies as equity any warrants that (i) require physical settlement or net-share settlement or (ii) provide the Company with a choice of net-cash settlement or settlement in its own shares (physical settlement or net-share settlement). The Company classifies as assets or liabilities any contracts that (i) require net-cash settlement (including a requirement to net cash settle the contract if an event occurs and if that event is outside the Company's control), (ii) gives the counterparty a choice of net-cash settlement or settlement in shares (physical settlement or net-share settlement) or (iii) that contain reset provisions that do not qualify for the scope exception. The Company assesses classification of its common stock warrants and other freestanding derivatives at each reporting date to determine whether a change in classification between assets and liabilities is required. The Company's freestanding derivatives consist of warrants to purchase common stock that were issued in connection with its notes payable. The Company evaluated these warrants to assess their proper classification and determined that the common stock warrants meet the

criteria for equity classification in the balance sheet. Such warrants are measured at fair value, which the Company determines using the Black-Scholes-Merton option-pricing model.

Revenue

The Company generates revenue from integration services which it delivers either pursuant to integration license agreements or delivery of engineering services. Revenue is recognized based on the following steps: (i) identification of the contract, or contracts, with a customer, (ii) identification of the performance obligations in the contract, (iii) determination of the transaction price, (iv) allocation of the transaction price to the performance obligations of the contract, and (v) recognition of revenue when, or as, the Company satisfies a performance obligation. The Company's integration services generally consist of depositing its proprietary technology onto the customer's semiconductor wafers and delivering such wafers back to the customer. Revenue from integration services is recognized as the performance obligations are satisfied, which is upon transfer of control of the wafers to the customer (generally upon shipment).

For recognizing integration service revenue from integration license agreements, the Company assesses (i) whether the license grant is distinct or combined with the transfer of goods or services and (ii) whether the license is a right to access intellectual property or a right to use the intellectual property. For licenses that are not distinct, but combined with other goods or services, the revenue is recognized at a point in time or over time as the obligations to perform the combined services and/or deliver the combined goods are satisfied. The Company's integration license agreements contain a technology grant as well as a performance obligation to deliver wafers with its technology deposited on them. The Company has determined the license grant is not distinct from the integration service. Accordingly, revenue from integration license agreements is recognized over time based on the Company's estimate of the time during which the service will be provided to the customer.

Deferred revenues consist of unearned amounts that have been billed to the customer in advance of the Company's performance obligations. These amounts have not yet been recognized as revenue. Revenue for these items will be recognized in accordance with the Company's revenue policy.

Research and development expenses

In accordance with authoritative guidance, the Company charges research and development costs to operations as incurred. Research and development expenses consist of personnel costs for the design, development, testing and enhancement of the Company's technology, and certain other allocated costs, such as depreciation and other facilities related expenditures.

Stock-based compensation

The Company computes stock-based compensation in accordance with authoritative guidance. The Company uses the Black-Scholes-Merton option-pricing model to determine the fair value of its stock options. The Black-Scholes-Merton option-pricing model includes various assumptions, including the fair market value of the common stock of the Company, expected life of stock options, the expected volatility and the expected risk-free interest rate, among others. These assumptions reflect the Company's best estimates, but they involve inherent uncertainties based on market conditions generally outside the control of the Company. Forfeitures are recorded when they occur.

As a result, if other assumptions had been used, stock-based compensation cost, as determined in accordance with authoritative guidance, could have been materially impacted. Furthermore, if the Company uses different assumptions on future grants, stock-based compensation cost could be materially affected in future periods.

The Company accounts for the fair value of equity instruments issued to non-employees using either the fair value of the services received or the fair value of the equity instrument, whichever is considered more reliable. The Company utilizes the Black-Scholes-Merton option-pricing model to measure the fair value of options issued to non-employees.

Income Taxes

In accordance with authoritative guidance, deferred tax assets and liabilities are recorded for temporary differences between the financial reporting and tax bases of assets and liabilities using the current enacted tax rate expected to be in effect when the differences are expected to reverse. A valuation allowance is recorded on deferred tax assets unless realization is considered more likely than not.

The Company evaluates its tax positions taken or expected to be taken in the course of preparing the Company's tax returns to determine whether the tax positions are "more-likely-than-not" of being sustained by the applicable tax authority. Tax positions not deemed to meet the "more-likely-than-not" threshold are not recorded as a tax benefit or expense in the current year. The

Company recognizes interest and penalties, if any, related to uncertain tax positions in interest expense. No interest and penalties related to uncertain tax positions were accrued at either December 31, 2018 or 2017.

The Company follows authoritative guidance which requires the evaluation of existing tax positions. Management has analyzed all open tax years, as defined by the statute of limitations, for all major jurisdictions, which includes both federal and states where the Company has operations. Open tax years are those that are open for examination by taxing authorities.

Use of estimates

The preparation of financial statements in conformity with GAAP requires the Company's management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Significant estimates are used when accounting for revenue recognition, fair value of stock-based compensation and warrants, valuation allowance against deferred tax assets and related disclosures. Actual results could differ from those estimates.

Subsequent events

Management has evaluated subsequent events and transactions occurring through the date these financial statements were issued. See Note 14.

Adoption of recent accounting standards

In May 2014, the Financial Accounting Standards Board ("FASB") issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*. The guidance in this ASU requires entities to recognize revenue in a way that depicts the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The Company has adopted Topic 606, and related updates, as of January 1, 2018 utilizing the full retrospective method of adoption. The adoption of Topic 606 did not have any impact on its results of operations and financial condition.

On August 26, 2016, the FASB issued ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments (a consensus of the Emerging Issues Task Force)*. The amendments in ASU 2016-15 address eight specific cash flow issues and apply to all entities, including both business entities and not-for-profit entities that are required to present a statement of cash flows under FASB Accounting Standards Codification 230, Statement of Cash Flows. The amendments in ASU 2016-15 are effective for public business entities for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. The Company has adopted this update as of January 1, 2018 and the adoption did not have a material impact on its financial condition or results of operations.

In May 2017, the FASB issued ASU No. 2017-09, C*ompensation–Stock Compensation (Topic 718): Scope of Modification Accounting*, clarifying when a change to the terms or conditions of a share-based payment award must be accounted for as a modification. The new guidance requires modification accounting if the fair value, vesting condition or the classification of the award is not the same immediately before and after a change to the terms and conditions of the award. The new guidance is effective for the Company on a prospective basis beginning on January 1, 2018, with early adoption permitted. The adoption of this update did not have a material impact on its financial position, results of operations or financial statement disclosure.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, *Income Tax Accounting Implications of the Tax Cuts and Jobs Act* ("SAB 118") which allows companies to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. The Company is required to recognize the effect of the tax law changes in the period of enactment, such as determining the estimated transition tax, re-measuring its U.S. deferred tax assets and liabilities at a 21% rate as well as reassessing the net realizability of its deferred tax assets and liabilities. The one-time transition tax does not apply to the Company as it does not have any undistributed foreign earnings. The provisional amount related to the re-measurement of its deferred tax balance was a reduction of approximately $9.9 million as of December 31, 2017. Due to the corresponding valuation allowance fully offsetting deferred taxes, there was no income statement impact. Upon completion of the Company's 2017 U.S. income tax return in 2018, the Company re-assessed its provisional estimate within the measurement period guidance outlined in SAB 118 and determined that the original estimate of $9.9 million was materially correct.

Recent accounting standards

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*, which establishes a new lease accounting model for lessees. The updated guidance requires an entity to recognize assets and liabilities arising from a lease for both financing and operating leases, along with additional qualitative and quantitative disclosures. In June 2018, the FASB issued ASU No. 2018-10,

Codification Improvements to Topic 842, Leases, which further clarifies how to apply certain aspects of the new lease standard. Topic 842 is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018, with early adoption permitted. The Company adopted Topic 842 on January 1, 2019, using a modified retrospective approach as applied to lease existing as of or entered into after the adoption date. Topic 842 provides a number of optional practical expedients and accounting policy elections. The Company elected the package of practical expedients requiring no reassessment of whether any expired or existing contracts are or contain leases, the lease classification of any expired or existing leases, or initial direct costs for any existing leases. The Company is in the final process of implementing a new lease accounting policy and updating its controls and procedures for maintaining and accounting for its lease portfolio under the new guidance. Upon adoption of Topic 842, the Company expects recognition of additional assets and corresponding liabilities pertaining to its operating leases on its balance sheets. The Company does not expect the adoption of the new standard to have a significant impact on its results of operations and cash flows.

In June 2018, the FASB issued ASU No. 2018-07, *Compensation – Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*. The guidance in this ASU expands the scope of ASC Topic 718 to include all share-based payment arrangements related to the acquisition of goods and services from both nonemployees and employees. This amendment will be effective for annual and interim periods beginning after December 31, 2018. The company does not expect ASU No. 2018-07 will have a material impact on its financial position, results of operations or financial statement disclosure.

4. REVENUE

The adoption of ASU No. 2014-09 represents a change in accounting principle that will provide financial statement readers with enhanced revenue recognition disclosures. The Company adopted Topic 606 in January 2018 and accordingly, the amount of revenue that the Company recognizes reflects the consideration it expects to receive in exchange for goods or services and such revenue is recognized at the time when goods or services are transferred and/or delivered to its customers. The Company recognizes revenue when it satisfies a performance obligation by transferring the product or service to the customer, either at a point in time or over time. The Company usually recognizes revenue from integration service agreements at a point in time and integration license service agreements over a period of time.

The Company has estimated that it will recognize approximately $155,000 in 2019 related to performance obligations that are unsatisfied or partially unsatisfied at the end of the reporting period.

Disaggregation of revenue:

The following table provides information about disaggregated revenue by primary geographical markets and timing of revenue recognition for the year ended December 31, 2018 (in thousands):

	Integration Services
Primary geographic markets	
Europe	$ 226
Asia Pacific	20
Total	$ 246
Timing of revenue recognition	
Products and services transferred at a point in time	$ 176
Products and services transferred over time	70
Total	$ 246

Deferred Revenue:

The Company records deferred revenue for customers that were issued invoices, but the Company has not yet recognized the revenue based on its revenue recognition policy. During the year ended December 31, 2018, the Company did not recognize any revenue that was included in deferred revenue as of January 1, 2018. The Company did have approximately $55,000 in deferred revenue related to invoiced customers, but revenue has not yet been recognized as of December 31, 2018.

5. BASIC AND DILUTED LOSS PER SHARE`

Basic net loss per share is calculated by dividing the net loss by the weighted-average number of shares outstanding for the period. Diluted net loss per share is computed by dividing the net loss by the weighted-average number of shares and dilutive share equivalents outstanding for the period, determined using the treasury-stock and if-converted methods. Since the Company has had

net losses for all periods presented, all potentially dilutive securities are anti-dilutive. Accordingly, basic and diluted net loss per share are equal.

The following potential common stock equivalents were not included in the calculation of diluted net loss per common share because the inclusion thereof would be anti-dilutive (in thousands):

	Year Ended December 31,	
	2018	2017
Stock Options	2,477	2,141
Unvested restricted stock (2017 Restated)	258	121
Warrants	765	765
	3,500	3,027

6. PROPERTY AND EQUIPMENT

Property and equipment consisted of the following (in thousands):

	December 31,	
	2018	2017
Computer equipment	$ 91	$ 77
Laboratory equipment	76	76
Software	6	6
Office equipment	4	1
Furniture and fixtures	1	1
	178	161
Less: Accumulated depreciation and amortization	(122)	(94)
	$ 56	$ 67

Depreciation and amortization expense relating to property and equipment was approximately $33,000 and $19,000 for the years ended December 31, 2018 and 2017, respectively. The Company depreciates computer equipment, laboratory equipment and office equipment on straight-line basis over three years. Furniture and fixtures are depreciated on a straight-line basis over five years. The Company amortizes software on straight-line basis over three years.

7. COMMITMENTS AND CONTINGENCIES

Operating leases

In October 2016, the Company entered into lease agreement for approximately 200 square feet of office space in Cambridge, Massachusetts. The lease with monthly payments of $2,074 per month commenced on October 24, 2016. The lease rate increased to $2,619 on January 1, 2019. The lease is a month to month and can be cancelled with a 30-day notice.

On January 19, 2016, the Company entered into a real estate lease agreement for a 3,396 square foot office facility in Los Gatos, California as its new corporate headquarters. The lease commenced on February 1, 2016 and had a two-year term. The lease was amended in December 2017 to extend the lease term for three years through January 31, 2021. The lease rate was increased to $13,401 in February 2019 due to an annual 3% increase and an annual adjustment of direct costs, in accordance with provisions of the lease.

Approximate future minimum lease payments required under the operating leases are as follows (in thousands):

Years ending December 31,	Amount
2019	$ 147
2020	165
2021	14
Total	$ 326

Licensing agreement

In December 2006, the Company entered into licensing agreement with ASM International, NV, a semiconductor OEM located in Almere, The Netherlands, pursuant to which ASM has granted to the Company a non-exclusive, worldwide license to

make, and sublicense others to make, semiconductor devices using certain ASM patents. The ASM license restricts the Company and its sublicensees from using the ASM licensed rights in the manufacture of EPI machines or any other machines used to manufacture semiconductors. The ASM license is coterminous with patents licensed by ASM, which expires on January 8, 2019, and requires the Company to pay ASM a royalty of 5% of net royalty revenue, generally defined as gross royalty revenue less certain customer offsets and credits, from the sale of any product incorporating the ASM licensed patents not manufactured on ASM equipment and a royalty of 2.5% of net revenue from the sale of any product incorporating ASM licensed patents manufactured on ASM equipment. All semiconductor devices incorporating the Company's MST technology manufactured prior to January 8, 2019 will be subject to the ASM license royalty. The Company incurred approximately $4,000 and $3,000 in royalty expense under this agreement for the years ended December 31, 2018 and 2017, respectively, which is included in cost of revenue in the statement of operations. As of the date of this filing the Company no longer is required to pay any further royalty payments under this agreement.

Legal

The Company may be involved, from time to time, in legal proceedings and claims arising in the ordinary course of its business. Such matters are subject to many uncertainties and outcomes and are not predictable with assurance. While management believes that such matters are currently insignificant, matters arising in the ordinary course of business for which the Company is or could become involved in litigation may have a material adverse effect on its business and financial condition. To the Company's knowledge, neither the Company nor any of its properties are subject to any pending legal proceedings.

8. STOCKHOLDERS' EQUITY

The Company is authorized to issue to up 2,500,000 shares of preferred stock, $.001 par value. As of December 31, 2018, no shares have been designated and no shares are issued and outstanding. Preferred stock may rank prior to common stock with respect to dividends rights, liquidation preferences, or both, and may have full or limited voting rights.

In May 2017, the Company issued 10,000 shares of common stock to a consultant for services rendered. The shares were valued at fair value on the date issued and the Company recorded an expense of approximately $60,000 in general and administrative expenses on the statement of operations for the year ended December 31, 2017.

In October 2018, the Company closed an underwritten public offering of 2,625,000 shares of common stock at a public offering price of $4.75 per share. The Company received approximately $11.4 million of net proceeds after deducting underwriting discounts and commission and other estimated offering expenses.

As of December 31, 2018, the Company has reserved approximately 3.2 million shares of common stock for issuance pursuant to outstanding stock options and warrants.

9. WARRANTS

The Company estimated the fair value of warrants using the Black-Scholes option pricing model. There were no warrants issued in the year ending December 31, 2018 or 2017. A summary of warrant activity for the year ended December 31, 2018 is as follows (shares in thousands except per share and contractual term):

	Number of Shares	Weighted-Average Exercise Prices	Weighted-Average Remaining Contractual Term (In Years)
Outstanding at January 1, 2018	765	$ 5.75	
Outstanding and exercisable at December 31, 2018	765	$ 5.75	1.9

The warrants outstanding at December 31, 2018 had an intrinsic value of approximately $405,000 based on a per-share stock price of $2.87 as of December 31, 2018.

10. STOCK BASED COMPENSATION

On March 14, 2007, the Company's stockholders approved the 2007 Equity Incentive Plan (the "2007 Plan"). The 2007 Plan expired in March 2017, however all options and warrants outstanding at the time of the expiration remained outstanding and exercisable by their term. At the time of the expiration of the 2007 plan, options to purchase 2,106,637 shares of common stock were outstanding.

In May 2017, the Company's shareholders approved its 2017 Stock Incentive Plan ("2017 Plan"). The 2017 Plan provides for the grant of non-qualified stock options and incentive stock options to purchase shares of the Company's common stock and for the grant of restricted and unrestricted share grants. The Company reserved a total of 3,750,000 shares of common stock for issuance under the 2017 Plan. All employees, officers, directors, consultants, advisors and other persons who provide services to the Company or any subsidiaries of the Company are eligible to receive incentive awards under the 2017 Plan. As of December 31, 2018, awards aggregate of 676,712 shares of common stock had been granted under the 2017 Plan and total of 3,073,288 shares of common stock are reserved for issuance.

The following table summarizes the stock-based compensation expense recorded in the Company's results of operations during the years ended December 31, 2018 and 2017 for stock options and restricted stock (in thousands):

	Year Ended December 31,	
	2018	2017
Research and development	$ 558	$ 435
General and administrative	1,738	2,822
Selling and Marketing	129	761
	$ 2,425	$ 4,018

As of December 31, 2018, there was approximately $4.3 million of total unrecognized compensation expense related to non-vested share-based compensation arrangements that are expected to vest. This cost is expected to be recognized over a weighted-average period of 2.1 years.

The Company records compensation expense for employee awards with graded vesting using the straight-line method. The Company records compensation expense for nonemployee awards with graded vesting using the accelerated expense attribution method. The Company recognizes compensation expense over the requisite service period applicable to each individual award, which generally equals the vesting term. The Company estimates the fair value of each option award using the Black-Scholes-Merton option pricing model. Forfeitures are recognized when realized.

The Company estimated the fair value of employee and non-employee stock options using the Black-Scholes option pricing model. The fair value of employee stock options is being amortized on a straight-line basis over the requisite service periods of the respective awards. The Company recognizes forfeitures as they occur rather than estimate their forfeiture rate. The fair value of employee stock options issued was estimated using the following weighted-average assumptions:

	Year Ended December 31,	
	2018	2017
Weighted average exercise price:	$ 5.64	$ 6.73
Weighted average grant date fair value:	$ 3.63	$ 2.94
Assumptions:		
Expected volatility	70.6%	42.7%
Weighted average expected term (in years)	6.0	6.0
Risk-free interest rate	2.71%	2.16%
Expected dividend yield	0.0%	0.0%

The risk-free interest rate was obtained from U.S. Treasury rates for the applicable periods. The Company's expected volatility was based upon the historical volatility of the Company. The expected life of the Company's options was determined using the simplified method as a result of limited historical data regarding the Company's activity. The dividend yield considers that the Company has not historically paid dividends and does not expect to pay dividends in the foreseeable future.

The following table summarizes stock option activity during the year ended December 31, 2018 (in thousands except exercise prices and contractual terms):

	Number of Shares	Weighted-Average Exercise Prices	Weighted-Average Remaining Contractual Term (In Years)	Intrinsic Value
Outstanding at January 1, 2018	2,141	$ 7.03		
Granted	338	$ 5.64		
Exercised	–	$ –		
Expired	(2)	$ 59.10		
Outstanding at December 31, 2018	2,477	$ 6.81	7.5	$ –
Exercisable at December 31, 2018	1,537	$ 6.98	7.2	$ –

During the year ended December 31, 2018, the Company granted options under its 2017 Plan purchase 337,924 shares of its common stock to its employees. The fair value of these options was approximately $1.2 million.

The Company issues restricted stock to employees, directors and consultants and estimates the fair value based on the closing price on the day of grant. The following table summarizes all restricted stock activity during the year ended December 31, 2018 (in thousands except per share data):

	Number of Shares	Weighted-Average Grant Date Fair Value
Outstanding at January 1, 2018	121	$ 6.90
Granted	248	$ 5.69
Vested	(111)	$ 6.19
Outstanding non-vested shares at December 31, 2018	258	$ 6.04

11. 401(k) PLAN

During 2002, the Company established a plan under Section 401(k) of the Internal Revenue Code (the 401(k) Plan). The 401(k) Plan covers substantially all of its employees who have attained 18 years of age. Employees may elect to contribute part of their annual compensation to the 401(k) Plan, up to the maximum deferral allowance for individuals by the Internal Revenue Service under Code Section 401(k), and the Company may make a matching contribution. During 2018 and 2017, there were no matching contributions made by the Company.

12. INCOME TAXES

On December 22, 2017, the 2017 Tax Cut and Jobs Act ("the Act") was enacted into law and the new legislation contains several key tax provisions, including a one-time mandatory transition tax on undistributed foreign earnings and a reduction of the corporate income tax rate to 21% effective January 1, 2018, among others. The Company is required to recognize the effect of the tax law changes in the period of enactment, such as determining the estimated transition tax, re-measuring its U.S. deferred tax assets and liabilities at a 21% rate as well as reassessing the net realizability of its deferred tax assets and liabilities. The one-time transition tax does not apply to the Company as it does not have any undistributed foreign earnings. The provisional amount related to the re-measurement of its deferred tax balance was a reduction of approximately $9.9 million as of December 31, 2017. Due to the corresponding valuation allowance fully offsetting deferred taxes, there was no income statement impact. Upon completion of the Company's 2017 U.S. income tax return in 2018, the Company re-assessed its provisional estimate within the measurement period guidance outlined in SAB 118 and determined that the original estimate of $9.9 million was materially correct.

The loss before provision for income taxes consisted of the following (in thousands):

	Year Ended December 31,	
	2018	2017
Domestic	$ (12,897)	$ (13,068)
International	–	–
Total	$ (12,897)	$ (13,068)

The Company had no income tax expense due to operating losses incurred for the years ended December 31, 2018 and 2017. The Company accounts for income taxes in accordance with ASC 740, which requires that the tax benefit of net operating losses, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is "more likely than not." Realization of the future tax benefits is dependent on the Company's ability to generate sufficient taxable income within the carryforward period. Because of the Company's recent history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not likely to be realized and, accordingly, has provided a full valuation allowance. The valuation allowance increased by approximately $2.8 million during the year ended December 31, 2018 and decreased by approximately $5.3 million during the year ended December 31, 2017.

The Company's deferred tax assets are as follows (in thousands):

	Year Ended December 31,	
	2018	2017
Deferred tax assets:		
Net operating loss carryforwards	$ 17,309	$ 14,907
Tax credit	1,233	1,074
Fixed assets and intangibles	1,528	1,784
Stock compensation	1,994	1,621
Accruals and other	212	111
Total deferred tax assets	$ 22,276	$ 19,497
Valuation allowance	(22,276)	(19,497)
Net deferred tax asset	$ –	$ –

Net operating losses and tax credit carryforwards as of December 31, 2018, are as follows (in thousands):

	Amount	Expiration in years
Net operating losses, federal	$ 11,185	No expiration
Net operating losses, federal	$ 63,507	2027-2037
Net operating losses, state	$ 26,657	2030-2038
Tax credits, federal	$ 1,132	2027-2038
Tax credits, state	$ 180	No expiration
Tax credits, state	$ 731	2022-2033

The effective tax rate of the Company's provision (benefit) for income taxes differs from the federal statutory rate as follows:

	Year ending December 31,	
	2018	2017
Statutory rate	21%	34.00%
State rate	1.17%	1.13%
Non-deductible items	(0.75)%	(1.07)%
Change in valuation allowance	(21.54)%	(34.77)%
Change in tax credits	0.12%	0.71%
Changes in deferred tax assets due to tax reform	–	(75.66)%
Changes in valuation allowance due to tax reform	–	75.66%
Total	–	–

Utilization of U.S. net operating losses and tax credit carryforwards may be limited by "ownership change" rules, as defined in Section 382 of the Internal Revenue Code. Similar rules may apply under state tax laws. The Company has not conducted a study to-date to assess whether a limitation would apply under Section 382 of the Internal Revenue Code as and when it starts utilizing its net operating losses and tax credits. The Company will continue to monitor activities in the future. In the event the Company previously experienced an ownership change, or should experience an ownership change in the future, the amount of net operating losses and research and development credit carryovers available in any taxable year could be limited and may expire unutilized.

The Company establishes reserves for uncertain tax positions based on the largest amount that is more-likely-than-not to be sustained. An uncertain income tax position will not be recognized if it has less than a 50% likelihood of being sustained. It is the

Company's policy to recognize interest and penalties related to income tax matters in income tax expense. As of December 31, 2018 and 2017, respectively, the Company has no accrued interest or penalties related to uncertain tax positions.

The Company files income tax returns in the U.S. federal jurisdiction and various state jurisdictions. In the normal course of business, the Company is subject to examination by their respective taxing authorities. The Company is not currently under audit by the Internal Revenue Service or other similar state or local authority. The statute of limitations remains effectively open for all tax years from inception (2007) through 2018. Tax years outside the normal statute of limitations remain open to examination by tax authorities due to tax attributes generated in earlier years which have been carried forward and may be examined and adjusted in subsequent years when utilized.

The following table summarizes the activity related to the Company's gross unrecognized tax benefits for the years ended December 31, 2018 and 2017 (in thousands):

	2018	2017
January 1 – unrecognized tax benefits	$ 606	$ 510
Increases (decreases) – prior year tax positions	4	(3)
Increases – current year tax positions	122	99
December 31 - unrecognized tax benefits	$ 732	$ 606

The following table summarizes the activity in the Company's Valuation Allowance and Qualifying Accounts for the years ended December 31, 2018 and 2017 (in thousands):

	Balance at Beginning of Year	Additions	Deductions	Balance at End of Year
Deferred tax assets valuation allowance				
Year ended December 31, 2018	$ 19,497	$ 3,035	$ 256	$ 22,276
Year ended December 31, 2017	$ 24,819	$ 892	$ 6,214	$ 19,497

13. PRIOR PERIOD FINANCIAL STATEMENT REVISION

During the first quarter of 2018, the Company identified an error related to the calculation of its basic and diluted weighted average number of common shares outstanding. The Company was inadvertently including unvested restricted stock awards in its calculation of average number of commons shares outstanding. The Company assessed the materiality of this error on its financial statements for prior periods in accordance with the SEC Staff Accounting Bulletin ("SAB") No. 108, *Considering the Effects of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements, codified in Accounting Standards Codification (ASC) 250-10-20, Error in Previously Issued Financial Statements*, and concluded that it was not material to any prior annual or interim periods. The Company has corrected this error for all prior periods presented by revising the financial statements and other financial information included herein. Periods not presented herein will be revised, as applicable, in future filings.

The effects of the correction of the immaterial error on the Company's Financial Statements was as follows (in thousands):

	December 31, 2017		
Statement of Operations	Amounts Previously Reported	Adjustment	As Revised
Net loss	$ (13,068)	-	$ (13,068)
Net loss per common share, basic and diluted	$ (1.08)	$ (0.03)	$ (1.11)
Weighted average number of common shares outstanding, basic and diluted	12,124	(351)	11,773

14. SUBSEQUENT EVENTS

The Company has evaluated subsequent events since December 31, 2018, the date of these financials. On February 27, 2019, the Compensation Committee of the Board of Directors of the Company approved the issuance of 297,978 shares of Restricted Stock Awards and 442,309 Stock Options to its employees.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

(a) *Evaluation of Disclosure Controls and Procedures*.

Our management, with the participation of our chief executive officer and chief financial officer evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Based upon that evaluation, our management, including our chief executive officer and chief financial officer, concluded that our disclosure controls and procedures were effective as of December 31, 2018 in ensuring all material information required to be filed has been made known in a timely manner.

(b) Changes in internal control over financial reporting.

There were no changes to our internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

(c) Management's report on internal controls over financial reporting.

Our management is responsible for establishing and maintaining adequate internal controls over financial reporting, as defined under Rule 15a-15(f) under the Exchange Act. Our management has assessed the effectiveness of our internal controls over financial reporting as of December 31, 2018 based on the framework established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework) ("COSO"). Our internal control system was designed to provide reasonable assurance to our management and board of directors regarding the preparation and fair presentation of published financial statements. An internal control material weakness is a significant deficiency, or aggregation of deficiencies, that does not reduce to a relatively low level the risk that material misstatements in financial statements will be prevented or detected on a timely basis by employees in the normal course of their work. Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2018, and based on that evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2018.

This report does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by our registered public accounting firm pursuant to the rules of the Securities and Exchange Commission that permit us to provide only management's report in this Annual Report.

Item 9B. Other Information

Not applicable.

PART III

The information required by Part III is omitted from this report because we will file a definitive proxy statement within 120 days after the end of our 2018 fiscal year pursuant to Regulation 14A for our 2019 Annual Meeting of Stockholders, or the 2019 Proxy Statement, and the information to be included in the 2019 Proxy Statement is incorporated herein by reference.

Item 10. Directors, Executive Officers and Corporate Governance

The information required under this item will be contained in the 2019 Proxy Statement and is hereby incorporated by reference.

Item 11. Executive Compensation

The information required under this item will be contained in the 2019 Proxy Statement and is hereby incorporated by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholders Matters

The information required under this item will be contained in the 2019 Proxy Statement and is hereby incorporated by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required under this item will be contained in the 2019 Proxy Statement and is hereby incorporated by reference.

Item 14. Principal Accountant Fees and Services

The information required under this item will be contained in the 2019 Proxy Statement and is hereby incorporated by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) Financial Statements

(1) Financial statements for our company are listed in the index under Item 8 of this document

(2) All financial statement schedules are omitted because they are not applicable, not material or the required information is shown in the financial statements or notes thereto.

Exhibit No.	Description	Method of Filing
1.1	Underwriting Agreement dated as of October 11, 2018 between the Company and Roth Capital Partners, LLC as representatives of the several underwriters named therein	Incorporated by reference from Current Report on Form 8-K Filed on October 11, 2018.
3.1	Amended and Restated Certificate of Incorporation of the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
3.2	Amended and Restated Bylaws of the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
3.3	Certificate of Amendment to Amended and Restated Certificate of Incorporation of the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
3.4	Certificate of Amendment to Amended and Restated Certificate of Incorporation of the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
4.1	Warrant dated February 9, 2015 issued to Liquid Patent Advisors, LLC	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
4.3	Warrant dated March 17, 2015 issued to National Securities Corporation	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
4.5	Warrant dated August 10, 2016 issued to National Securities Corporation	Incorporated by reference from the Registrant's Quarterly Report on Form 10-Q filed on September 19, 2016.
10.1	Assignment of Patent Rights dated April 3, 2009 between Dr. Robert Mears and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.2	License Agreement dated December 22, 2006 between ASM International, NV and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.3+	2007 Stock Incentive Plan	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.

10.4	Exclusive License and Collaboration Agreement dated March 3, 2010 between K2 Energy Limited and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.5	Letter Agreement dated June 6, 2014 between K2 Energy Limited and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.6+	Executive Employment Agreement dated October 16, 2015 between Scott Bibaud and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.8+	Employment Agreement dated January 1, 2016 between Erwin Trautmann and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.9+	Employment Agreement dated January 1, 2016 between Ron Cope and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.10+	Employment Agreement dated January 13, 2016 between Dr. Robert Mears and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.12	Lease Agreement dated January 19, 2016 between 750 University, LLC and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.13+	Employment Agreement dated February 23, 2016 between Francis Laurencio and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.14+	Amendment No. 1 dated February 26, 2016 to Employment Agreement dated October 12, 2015 between Scott Bibaud and the Registrant	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
10.18+	Form of Restricted Stock Agreement	Incorporated by reference from the Registrant's Amendment No. 1 to Registration Statement on Form S-1 filed on July 29, 2016
10.19+	Atomera Incorporated 2017 Stock Incentive Plan	Incorporated by reference from the Registrant's Definitive Proxy Statement filed on April 10, 2017.
10.20	First Amendment to Lease Agreement dated January 19, 2016 between 750 University, LLC and the Registrant	Incorporated by reference from the Registrant's Form 10K filed on March 6, 2018.
21.1	List of Subsidiaries	Incorporated by reference from the Registrant's Registration Statement on Form S-1 filed on June 30, 2016.
23.1	Consent of Marcum LLP, Independent Registered Public Accounting Firm	Filed electronically herewith
31.1	Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed electronically herewith
31.2	Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.	Filed electronically herewith

32.1	Certification of Principal Executive Officer and Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350).	Filed electronically herewith
101.INS	XBRL Instance Document	Filed electronically herewith
101.SCH	XBRL Taxonomy Extension Schema Document	Filed electronically herewith
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	Filed electronically herewith
101.LAB	XBRL Taxonomy Extension Label Linkbase Document	Filed electronically herewith
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	Filed electronically herewith
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	Filed electronically herewith

\+ Indicated management compensatory plan, contract or arrangement.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ATOMERA INCORPORATED.

Date: March 11, 2019

By: */s/ Scott A. Bibaud*
Scott A. Bibaud
Chief Executive Officer,
(Principal Executive Officer)
and Director

Date: March 11, 2019

By: */s/ Francis B. Laurencio*
Francis B. Laurencio
Chief Financial Officer
(Principal Financial and
Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/*Scott A. Bibaud* Scott A. Bibaud	Chief Executive Officer and Director *(Principal Executive Officer)*	March 11, 2019
/s/*John D. Gerber* John Gerber	Director and Chairman	March 11, 2019
/s/ *Erwin Trautmann* Erwin Trautmann	Executive Vice President of Strategic Business Development and Director	March 11, 2019
/s/*Rolf Stadheim* Rolf Stadheim	Director	March 11, 2019
/s/*C. Rinn Cleavelin* C. Rinn Cleavelin, Ph.D.	Director	March 11, 2019
/s/ *Steven K. Shevick* Steven K. Shevick	Director	March 11, 2019